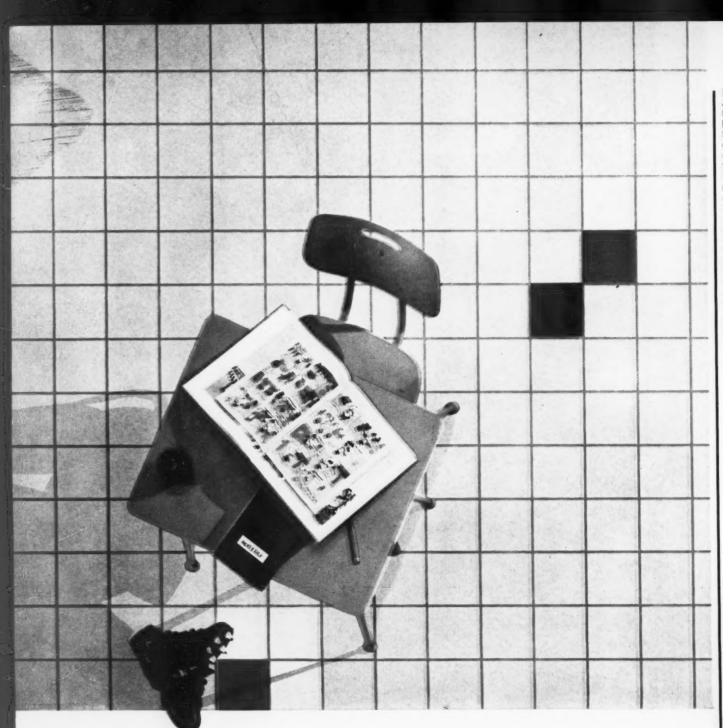
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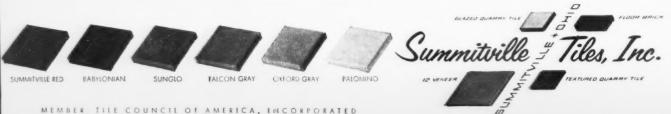
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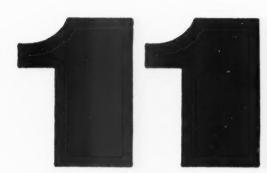
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BPA



This month's A/E NEWS examines current progress in WOOD TECHNOLOGY and studies its architectural implications. Included is a technical appraisal of stressed skin plywood construction (p. 11), and laminated wood (p. 18), an evaluation of the role of mechanical fasteners as elements of prefabrication (p. 24) and a special wrap up report on results of recent wood research (p. 36). Cover design is by Tony Palladino. Photo by Zvonko Glyck.

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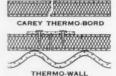
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LT. GEN. W. K. WILSON, JR., was recently named to command the U. S. Army's Corps of Engineers, Washington, D. C. Brig. Gen. Alden K. Sibley was appointed as deputy chief of engineers for military operations. Maj. Gen. Stephen R. Hanmer was reassigned as commanding general, U. S. Army Engineering Center, and commandant for the Army's Engineer School and Research and Development Laboratories, Fort Belvoir, Virginia.

LLOYD MORGAN FAIA recently received the Building Stone Institute's annual architect award for distinguished use of natural stone. Mr. Morgan was architect for the Waldorf-Astoria Hotel in New York City.

WILLIAM W. WURSTER FAIA has been appointed professional adviser in the competition for the design of a new mansion for the Governor of California. He will be assisted by Daniel J. Nacht AIA.

GEORGE T. ROCKRISE AIA President of the Northern California Chapter AIA has been appointed to the San Francisco Planning Commission.

JOHN F. HENNESSY PE of Syska & Hennessy, New York City consulting engineering firm, was recently appointed to that city's Board of Education.

RICHARD ROTH AIA, of Emery Roth and Sons, architects, New York City was recently named chairman of the Real Estate, Construction and Architect Division of the Federation of the Handicapped. Max H. Foley FAIA was named co-chairman.

ROBERT F. LENT AIA will serve as visiting lecturer in the department of architecture at Rice University, Houston, Texas. Mr. Lent, an associate in the firm of Hamilton Brown & Associates, will be a critic in architectural design.

DR. MILES N. CLAIR PE, president of the American Society for Testing and Materials, Philadelphia, was recently given a Distinguished Citizen Tribute from the City of Philadelphia.

ALDO E. VAN EYCK, Dutch architect, has been appointed visiting professor at the Washington University school of architecture for the fall semester. Professor van Eyck's particular interest is urban design. He was a member of the International Congresses for Modern Architect (CIAM), and is now a member of Team-X, an informal organization which is an outgrowth of CIAM.

EUGENE A. DEMARTIN AIA has been selected chairman of the 62nd An-

GAZETTE

nual Convention of the New Jersey Society of Architects and New Jersey Chapter, AIA. The 1962 Convention is scheduled for June 14-16 at the Essex and Sussex Hotel, Spring Lake, New Jersey.

FRITZ VON GROSSMAN of the Milwaukee architectural firm von Grossman, Burroughs and Van Lanen has been re-elected to the board of governors of the School Facilities Council of Architecture, Education and Industry.

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FRIEDMAN, OMARZU, ZION and LUNDGOOT is the name of a new architectural firm located at 150 North Wacker Drive, Chicago 6, Illinois. Heading the new firm are Hans A. Friedman AIA, Richard G. Lundgoot AIA, Joseph H. Omarzu, architect and William Zion, architect The Chicago firm of De Leuw, Cather & Co., architects, will collaborate, when the occasion warrants, on civil, structural, mechanical, electrical and traffic engineering phases of the architectural assignments of the new partnership.

HOWARD A. STUCKY, architect, has joined the firm of Hamilton Brown & Associates, Houston, Texas, as an architectural designer.

ARCHITECTS COORDINATE, a new firm composed of a group of architects formerly with several leading architectural organizations in the Indianapolis, Indiana area, has been formed. Offices are at 4845 College Avenue, Indianapolis. Principals in the firm are Harry E. Cooler AIA, Don B. Fisher AIA, Robert E. Lakin AIA, and William C. Schubert AIA.

M. A. DURLAND, dean of the school of engineering and architecture, Kansas State University, has retired.

GORDON L. SCHENCK has been appointed senior associate of the firm of Ballard Todd & Associates, New York City. Robert Cabrera and Paul F. Basile have been named associates,

KOTON & DONOVAN is the name of a new consulting engineering firm with offices at the Crossroads Plaza, West Hartford, Conn. Jacob Koton and William J. Donovan head the firm that will specialize in mechanical and electrical engineering in the air conditioning, refrigeration, heating, plumbing and electrical fields.

WILLIAM E. COX is a new member of the Ballinger Company, architects and engineers, of Philadelphia.

ROBERT C. OSBORNE was recently appointed assistant dean of Pratt Institute's School of Continuing Professional Studies.



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FLEWELLING, MOODY & HORN is the new rame of the Los Angeles, California architectural and engineering firm formerly known as Flewelling & Moody. New vice presidents and directors are Aubrey Horn Ata and Ralph H. Flewelling. Ralph C. Flewelling FAIA and Walter L. Moody AIA continue as president and vice president, respectively.

RICHARD W. SNIBBE AIA has opened an office at 200 East 37th Street, New York City. Mr. Snibbe was formerly associated with Ballard, Todd and Snibbe.

SHAYMAN & SALK, Chicago architectural firm, have formed a special convalescent home planning division within the parent organization.

ANNE POPE, interior designer, has joined the New York City architectural, design and planning firm of Friedin-Studley Associates.

MAIL

Color standards advocated

TO THE EDITOR:

I am writing to say how much I was interested by the article on color in the September issue of A/E News. This article is of special value to me because of my conviction as to the desirability of color standards in the building industry. I realize that there is a wide divergence of opinion about this. Of course, I feel that if the sceptics really understood the problem, they would agree with me!

As you probably know, the Building Research Institute is having a conference (in Washington, D.C.) in November, at which this question will be discussed. I hope that this will lead to some conversions.

In any case, I enjoyed the article and feel that you presented both sides of the controversy excellently and fairly.

My congratulations!

WALDRON FAULKNER FAIA
Washington, D.C.

Training for research in architecture

TO THE EDITOR:

Existing curricula in architecture could provide an appropriate undergraduate education for the research and design consultant discussed in your editorial (A/E NEWS, June 1961). It would be necessary to select options or electives with considerable care.

It is generally recognized that

FORECAST

WOOD RESEARCH OPENS PROSPECTS OF HIGHER WORKING STRESSES

Are present working stresses for wood too conservative? The following report, specially prepared for A/E NEWS by the U.S. Forest Products Laboratory, gives news of an extensive research project which, after it is completed in mid-1964, may well have a startling effect on wood design in architecture. Project engineer in charge of research is Lyman W. Wood.

A nationwide research undertaking aimed at developing much broader basic information on the strength properties of the Nation's more important commercial wood species is under way at the U.S. Forest Products Laboratory at Madison, Wis.

The research is expected to result ultimately in a re-evaluation of the strength and stiffness of many basic wood structural elements. One ultimate aim, according to research engineers at the federal laboratory, is to set up revised working stresses for structural lumber.

Many American species are now rated for strength on the basis of samplings from a rather small number of trees. At the time the samplings were made, these species were little used, whereas now they have come into use on a much wider basis.

It is reasonable to assume that the broad investigation of wood quality now under way may turn up information justifying revision of existing stresses and design loads.

Research starts in the forest

The strength research is part of an overall evaluation of wood quality that begins in the forests with standing timber. Crews of foresters and other employees of the U.S. Forest Service, which operates the Laboratory, have been busy for several years on wood sampling work. The sample collection began in Mississippi on a trial basis. It succeeded so well there, yielding information of value to lumber, plywood, paper, and other producers as well as forest owners and managers, that the project has since been expanded to forests from coast to coast.

From the many thousands of wood samples being taken from living trees, a picture of wood quality is slowly being drawn that will be far clearer and more definitive than anything hitherto possible. Specific gravity, one of the basic quality indicators, is especially useful in providing more precise strength evaluations.

Where specific gravity data indicate that existing strength values are not representative of a species, steps will be taken to re-examine that species. Such re-examinations would of course lead to revision of basic and working stresses if the new findings warrant.

A new look at lumber grades

The Laboratory is also cooperating with the lumber industry on a closer look at existing working stresses for various grades of lumber (especially house framing). One approach here is to determine whether existing working stresses accurately reflect the true strength of the lumber in a grade.

Existing stresses are based on the strength of the weakest piece that can be expected to turn up in a given grade of a given species. Since each grade covers a range of pieces containing knots of different sizes, cross grain varying in slope, and other characteristics affecting strength, the pieces within a grade necessarily vary somewhat in strength.

To base the strength value for a grade on the weakest piece, therefore, is a highly conservative approach leading to considerable over-design, for the simple reason that the great majority of structural members in a grade are therefore stronger than necessary. Efforts are being directed towards seeking a method of basing working stresses on a strength value for a grade that takes into consideration the strength of the stronger pieces. This could conceivably result in fuller use of the inherent strength of wood in structures and, therefore, in more economical construction.

Non-destructive testing

In related project, the U.S. laboratory is exploring possibilities of non-destructive testing of structural members. Various other research agencies are also engaged in this work. The object is to find practical means of evaluating each piece of lumber individually, so that a more precise strength or stiffness value can be assigned to it than is possible by present grading methods, which rely entirely on visual inspection by a grader.

Among approaches being investigated are electrical measurement of vibration-damping characteristics of wood, and density and moisture content measurements by means of radiation from a radio-active source.

MAIL

the place for specialization is at the graduate level. I am sure that there are several schools of architecture that are capable of developing graduate work in the area of building technology. (It is unfortunate that the word Technology has several meanings and may confuse the issue.)

The next problem is to get the students' interest.

LEONARD WOLF AIA
Head, Department of Architecture
and Architectural Engineering
Iowa State University

School fall-out shelters

TO THE EDITOR:

In his letter (A/E News, Oct. 1961) Mr. Foley alludes to two types of fall-out shelter: (1) a "permanent" shelter, and (2) a shelter for "temporary protection." The introduction of this variable into the problem makes a definition of "permanent" and "temporary," in terms of hours, a necessity.

With regard to the "temporary" shelter which Mr. Foley has discussed, I feel that one must differentiate between "dose" and "dose rate," the same as between the terms "miles" and "miles per hour."

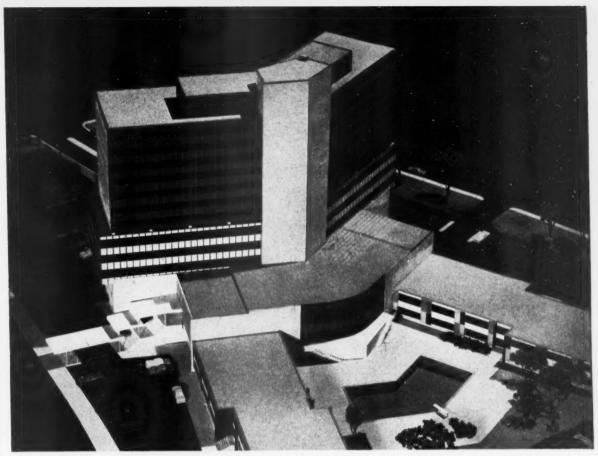
25 Roentgens is considered to be the maximum short-time, once-ina-lifetime emergency dose of radiation to which an individual can be exposed without producing detrimental physiological effects. (See Title 10, Code of Federal Regulations, Part 20, or National Bureau of Standards Handbook, 59 or 69.) Mr. Foley advocates a dose rate. for design purposes of 30 R/hr for "temporary" shelters. This means that a shelter occupant would receive 25R in 25/30 x 60 or 50 minutes. This is, indeed, a "temporary" shelter, if it can be classed as any type of shelter at all.

Also, since a mean-lethal dose (50 per cent fatalities) to homo sapiens is in the range 450-600R, occupancy of the "shelter" for between 450/30 or 15 hours and 600/30 or 20 hours would produce 50 per cent fatalities.

Verification of these statements can be obtained from any of a group of well-qualified individuals in the field other than myself. May I suggest contacting any of the following:

Mr. John Bernsee, Health Physicist, Yankee Atomic Electric Co., Rowe, Mass.; Dr. A. H. Emmons, University of Missouri, Columbia, Mo.; Dr. G. Hoyt Whipple, University of Michigan, Ann Arbor, Mich.

THOMAS G. BASSETT, PE Trenton, Mich.



GOLDEN TRIANGLE MOTOR HOTEL, Norfolk, Virginia. Architect: Anthony F. Musolino; General Contractor: Blake Construction Company; Mechanical Contractor: Hicks & Ingle Company; Distributor for Anaconda: Hajoca Corp.

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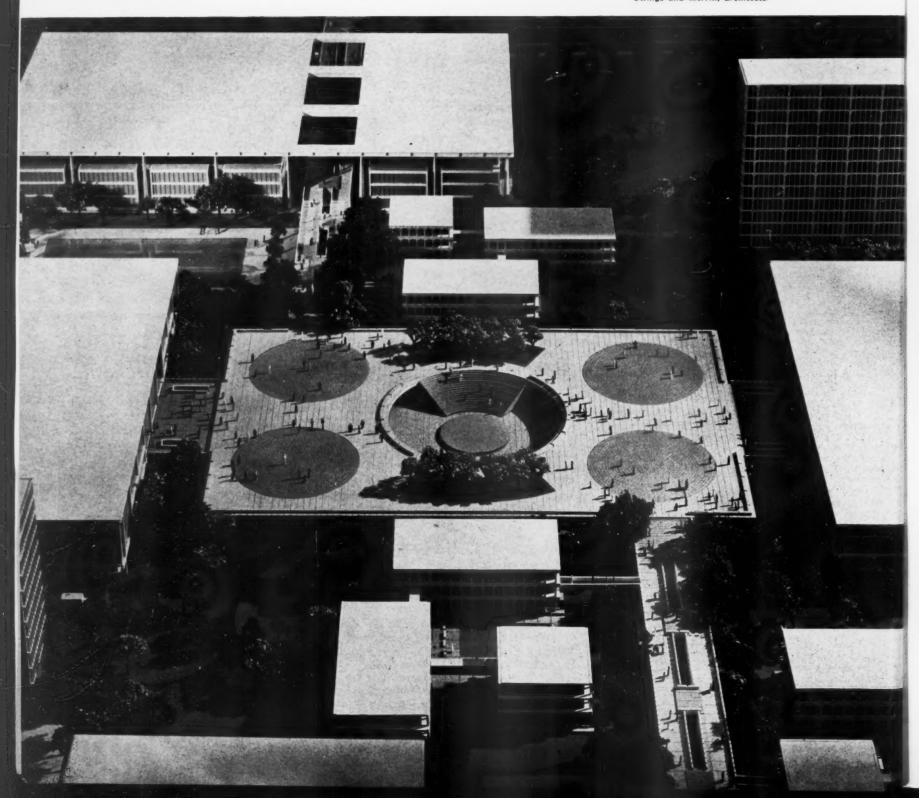
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AE NEWS

VIEW TOWARDS Great Court of proposed new campus for University of Illinois at Congress Circle, Chicago. It is expected to be one of the most intensively developed university campuses in the country, with a final area of only 106 acres. The first phase is to be concluded by the fall of 1964 and the second by 1969. Construction forming a third phase will be added after that date. The four dark circles connote lecture rooms located under Court. Union and library are to the left and right, respectively. Skidmore, Owings and Merrill, architects.





13-STORY office building to be known as Gateway West, is an \$8.5 million structure scheduled as part of the half-billion dollar Century City project in Los Angeles. The building will have a reinforced concrete frame and a curtain wall consisting of glass and anodized aluminum. Ceilings will be fully demountable for flexibility. Welton Becket and Associates are architects and engineers.



NEW NORFOLK (Va.) City Hall will be a 14-story building intended as the dominant element of the Norfolk Civic Center Project, scheduled for completion in 1963. This structure is to be enclosed with a special "sunbreak" wall of floor to ceiling glass in two layers, 3' apart, designed to reduce solar heat and glare. Architects and Associate architects are respectively Vincent Kling FAIA, and Oliver Smith. Fraioli, Blum & Yesselman are structural engineers. Charles S. Leopold Company are mechanical and electrical engineers. (Photo by Lawrence S. Williams, Inc.).



ADMINISTRATIVE CENTER for Deere and Company will consist of 7story office building (center), engineering center (left) and auditorium and machinery display building (right). All buildings will feature an exposed, corrosion resistant steel framing and an unusual system of exterior steel sun shades. Architects: Eero Saarinen and Associates. Center will be located near Moline, III.

The Frank P. Brown Medal of the Franklin Institute was awarded in absentia, on October 18, to Le Corbusier. He was awarded the medal "for a lifetime of creative leadership in the teaching and practice of architecture, as exemplified by his modular concept of human scale, free plan, pillar foundations, glass walls, sun breaks and roof terraces; his city planning, as exemplified by the vertical city concept; and for his outstanding contributions as a sculptor and painter."

The award was provided for in the will of Franklin P. Brown, a member of Franklin Institute, for "discoveries and inventions involving meritorious improvements in the building and allied industries."

Alaska AIA chapter approved

An Alaska Chapter of the AIA has been approved for membership in the parent organization, contingent on processing formalities, by the Committee on Profession of AIA. The Seattle Chapter and regional director Harry C. Weller sponsored the new chapter.

AIA asks for home design entries

A request for entries in the seventh annual "Homes for Better Living Program" is being issued by the AIA.

Any house designed by an architect registered in the United States is eligible for the judging. All custom built houses will be divided into three classes, by floor area; and merchant built houses will be divided into three classes, according to selling price. Each category will be judged separately. There will also be a third category for garden apartments.

Further information on registrations, which close January 12, 1962, is available from Mrs. Faynetta Nealis at AIA headquarters in Washington.

Cornell appoints researcher

The first research appointment under the new Dean's Fund in Architecture has been made at the Cornell University College of Architecture.

The fund, established by special trustee action to develop research in the College of Architecture, represents an expanding research program in this field at the university.

The first appointment made under the fund, is that of Barclay G. Jones, as associate professor in the department of city planning. He had been assistant professor of city planning at the University of California.

(Continued on following page)

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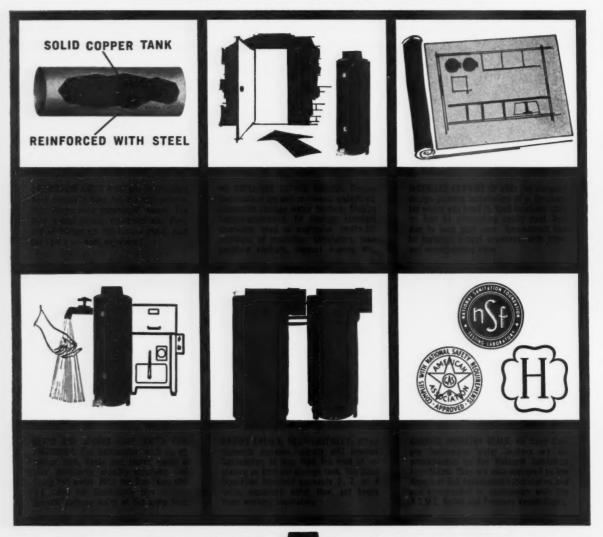
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AE NEWS

(Continued from preceding page)



WESTLAKE STATION and Alweg Monorail train, as they will appear at the Century 21 Exposition, Seattle, Wash. Platform level will be 25' above the street, supported on four reinforced concrete piers. Architects and engineers are Adrian Wilson and Associates.

Monorail station started

Construction is now under way on the terminal stations for the monorail transportation system (see A/E News, Sept. 1961, p. 6) being built for the Century 21 Exposition in Seattle.

The monorail will traverse a 1.2 mile route from the center of Seattle to the Exposition grounds.

Westlake Station, in downtown Seattle at Westlake and Pine Streets, will be supported on steel beams and span Pine St. The platform level will be 25' above the street and supported on four reinforced concrete piers. Speed ramps will transport passengers to and from the street. The station and ramps feature vaulted roofs.

The Exposition station will be made of concrete block, and located at ground level. It will have poured concrete floors and steel bents, supporting a metal roof. The station will also serve as one of the entrances to the fair grounds. (See photo above.)

Schuman heads Lincoln Center

William Schuman, president of the Juilliard School of Music, has been elected president of the Lincoln Center for the performing Arts, effective January 1, 1962. He will succeed General Maxwell D. Taylor, who resigned July 1, 1961 to become military advisor to President Kennedy. Dr. Schuman has also been elected a director of the Center, effective at once.

Edgar B. Young, who has been acting president since General Taylor was called to Washington last April, will continue in that office until the end of the year.

Urban affairs bill shelved

The administration backed bill to

make a cabinet level department of Urban Affairs was shelved late in September, during the Congressional rush towards adjournment.

The measure, which had been promised by the President during his campaign, lacked the necessary support for passage in this session of Congress. It was felt, however, that it will pass during the legislative session next year.

Congress presents Candela, Parkin

Cheap labor, cheap formwork, ready availability of concrete components, and the custom of architects to execute their own designs as general contractors, are the outstanding characteristics of the Mexican scene, according to Felix Candela. Candela, together with John C. Parkin, of Toronto, Dean Charles R. Colbert AIA of Columbia and Prof. R. W. McLaughlin FAIA of Princeton, appeared on a panel dealing with comparative design and construction approaches in Canada and Mexico.

The panel was one of several conducted at the Industrial Building Congress recently concluded in New York City. In contrast Parkin, chief of design in the office of John B. Parkin Associates, of Toronto, described conditions in Canada, in which codes tended to restrict use of concrete, where labor costs had risen 32% since 1956 (material costs had gone up only 4.5% in the same period), where budgets were restricted. land expensive, and climate an important element of design. He added, however, that these restrictions seemed to him beneficial for architecture. (Part of Parkin's address comparing Canadian and US architects and architecture appears in Abstracts, p. 87).

After the two speakers had finished, they were asked a series of questions by Dean Colbert and Prof. McLaughlin, who had been assigned the novel function of "interrogators." The discussion, which had hitherto been calm and factual, turned into a very keen debate when the original speakers were asked to elaborate on their respective design approaches. Candela believes in the single design head, and was emphatically backed up by Dean Colbert, who abandoned temporarily his role as interrogator to deliver his own views on what kind of office produces the best architecture.

His views were in sharp contrast to those of Parkin, who advocates (and practises) the type of approach involving an office which contains within it all the major consulting professions, in addition to the architects; "design by committee," in other words.

The discussion then turned to education. In Parkin's view new graduates often did not wish to face the fact that from a practical standpoint there was still a lot to learn after graduation; was this not perhaps partly the fault of the schools in not having made this clear enough to the students? This statement did not please the two educators-interrogators, who maintained that it is the function of a school to provide a broad, to some extent theoretical training, if it is not to sink to the level of a vocational school. Practical experience, they said, would be picked up in due course.

The talks by Parkin and Candela were illustrated by slides of recent work.

BRI to become independent

The National Academy of Sciences —National Research Council has announced that the Building Research Institute, a constituent part of the Division of Engineering and Industrial Research, will become an independent technical society for the building sciences, late next year. The Institute is an instrument for the stimulation and correlation of interdisciplinary research in the building industry, which was founded as a part of the Academy—Research Council in 1951.

BRI will continue to function as a membership organization, presenting its semi-annual conferences developed by committees of its members, and publishing the technical reports of its meetings for distribution to members and sale to the scientific public.

The regular member services, including the monthly Building Science News, the Building Science Directory, and the Documentation Service, will also continue.

Moscow Fair planning started

Several groups of Soviet architects and engineers have begun making preliminary plans for architecture at the 1967 Moscow World Fair, according to a report in the *Ohio Architect* by Yuri Dykhavichny, Chief designer of the Moscow Construction Bureau.

Recently the Shchusev Museum in Moscow organized a display of preliminary projects and plans for the arrangement of pavilions. These first sketches will probably determine the general trend of planning.

Among the projects are several buildings which incorporate new structural techniques, reportedly making it possible to cover support-free spans of up to 2000 feet.

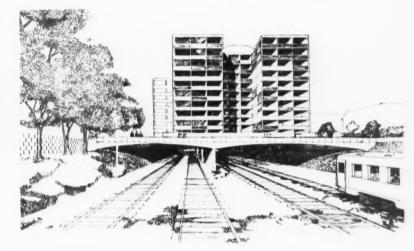
High strength steels, synthetic materials, transparent plastics, and plastic decorative materials, are to be used extensively in the buildings. Pre-fabricated reinforced concrete structures will also be represented.

BRI to survey color problems

The problem of colors standards and color identification will be scrutizined as part of the Building Research Institute's 1961 Fall Conferences, to be held November 28-30, at the Mayflower Hotel in Washington, D.C.

Participating in the "Identification of colors for building" conference will be Kenneth L. Kelly, physicist and specialist in optics at the National Bureau of Standards, who will describe the problems of color identification and color systems; Blanche R. Bellamy, manager of Munsell Color Co., Inc., who will discuss the recent history and current industry use of means of color identification; and Everett Call, president of Call Marketing Services, Inc., who will report on progress in research toward establishing a workable system of color identification.

(Continued on following page)



MIDDLE INCOME apartment projects scheduled for construction directly over Long Island Railroad tracks in Queens, N.Y. The LIRR will retain permanent rights to operate through the area. Pilings on which buildings will rest are to be driven down through the road bed between tracks. Architects are George and Reuben Miller.

DRAWING SHOWS view of proposed California Mart, scheduled for downtown Los Angeles. Mart is planned as an international marketing center, and will include parking facilities on three underground levels, commercial and entertainment facilities, and a civic center. Architects are Victor Gruen Associates.



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AE NEWS

(Continued from preceding page)

The conference will include a panel discussion of the problem and what can be done to solve it. The panelists will be Waldron Faulkner FAIA, architect; Beatrice West, color consultant; Henry D. Bixby, ceramic research engineer; Gladys Miller, editor of shelter magazines for Henry Holt and Company; and Richard Jones, marketing specialist and former advertising manager of House and Home magazine. (See also article on color—A/E News, Sept. 1961, p. 26.)

Authorize A36 steel in New York

A bill authorizing the use of A36 steel in buildings in New York City was recently signed by Mayor Robert Wagner. In signing the legislation, Wagner said: "I am pleased to sign this local law which the City departments and the steel industry jointly recognize as a major step forward."

The value of the new steel is in its higher minimum yield point, which is reportedly 10 per cent higher than other carbon structural steels. The minimum yield point for A36 is 36,000 psi compared to 33,000 psi for the A7

steel previously used. (See also article on high strength steels—A/E NEWS, June 1961, p. 12.)

Start Philadelphia renewal projects

Groundbreaking ceremonies in Philadelphia recently marked beginning of construction on two of the urban renewal projects in the overall renewal plan for the city. The projects begun are the 10,000 home community in the Eastwick section in Southwest Philadelphia, and a development of town houses and multi-story apartment buildings in the Washington Square East section of the city. The combined cost of the projects will be \$350 million. The community was planned by Constantinos Doxiadis, of Greece.

The Eastwick project will cover four square miles between the Schuylkill and the Philadelphia International Airport, at the southwestern tip of the city. Most of the 3,400 acres, formerly given over to dumps and automobile junkyards, have been built up by 11 million cubic yards of silt dredged from the Schuylkill and the Delaware by the Army Corps of Engineers.

The Washington Square East project is adjacent to the south side Inde-

pendence National Park, a three block section, being landscaped and developed by the Federal Government to the east of Independence Hall. When completed the development will contain 1,782 apartment units and about 400 town houses. Architect is I. M. Pei AIA.

The Philadelphia renewal program was described in A/E NEWS, April 1961, Preview.

NY-AIA names Stewardson winners

The New York Chapter of the AIA has announced its first grant under the newly founded James Stewardson Travelling Fellowship. The \$2,000 award was given to Edward T. Schiffer, of New York City, for a projected study of prefabrication techniques in Europe.

Schiffer, who is with the architectural firm of Carson, Lundin, and Shaw, will make a study of the prefabrication of industrial structures, schools, houses, and apartments in Italy, Germany, England, France and other countries. Following his investigation, he plans to prepare a comprehensive work, summarizing the present developments in the field and examining the principles involved.

ASCE to pick outstanding project

The American Society of Civil Engineers announced plans for its third annual Outstanding Civil Engineering Achievement competition for the 1962 award.

The purpose of the competition is to select an outstanding current civil engineering project. Judging of the projects, which are nominated by the Society's directors, is based on engineering skill, engineering progress, and "service to mankind."

The first such award, for 1960, was won by the St. Lawrence Power and Seaway Project, and the second, for 1961, went to the New York International Airport. Twelve projects were nominated for the 1960 competition, and 11 for the 1961 competition.

Church competition announced

The Fifth annual competition of the Evangelical Church Plan Awards for 1962 has been announced.

The purpose of the awards is to stimulate interest of architects and designers in the building needs of conservative and evangelical churches of all denominations. The competition is open to all designers of Protestant churches with evangelical or conservative emphasis.

Rules for the competition are available from the National Association of Evangelicals, Box 28, Wheaton, Ill., of *Christian Life* magazine, 33 South Wacker Drive, Chicago 6, Ill.

Copper and Brass awards plans set

The fourth annual awards program to honor outstanding architectural applications of copper, brass, and bronze has been announced by the Copper and Brass Research Association.

The first prize winner will receive \$500 and a bronze trophy, to be presented at the Association's annual meeting next May. Entries can be architectural designs, new engineering concepts, or other creative developments in architecture and construction which use the copper metals.

Entries for the present competition must be submitted before March 31, 1962. Entry forms, providing full details, are available from the Association at 420 Lexington Avenue, New York 17, N.Y.

Two win Hot Dip awards

The first two of ten International awards of \$1,000 each, offered by the American Hot Dip Galvanizers Association, in cooperation with the American Zinc Institute, have been announced. The winners are Earl H. Lenz and Ralph D. Barer.

Barer, of Victoria, B.C., received the award for his idea for the substitution of forged and galvanized steel clamps for scaffold construction, to retain the strength of steel and eliminate alleged uncertainties of performance in lighter metals.

Reynolds award nominations open

Nominations are now being received by the AIA for the 1962 R. S. Reynolds Memorial award. The \$25,000 award is given annually by the Reynolds Metals Company to the architect who has designed a significant structure in which aluminum has been used creatively, as chosen by a panel of architects.

Architects may be nominated by anyone, including themselves or their firms. Nominations may be made by writing the Reynolds Award, American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. Nominations should include the architect's name and address, name and location of the structure, the date it was completed, and name and address of the person making the nomination.

The award was established in 1957 in honor of the late Richard S. Reynolds.



Circle 106 for further information

THE STRESSED SKIN IN WOOD CONSTRUCTION

The following article describes the nature of stressed skin plywood construction, defines its uses and limitations, and outlines two areas in which new technical developments are in prospect. Included is a discussion of fire resistance, of shear as a controlling factor, and of problems of panel installation.

by Joseph L. Leitzinger, PE*

The stressed skin plywood panel had a very ordinary beginning in the 1930's. At that time, increasing interest in factory-fabricated house units led to testing of wood panels with stressed covers by the U.S. Forest Products Laboratory. Wall, floor and roof panels were tested, leading to the development of a prefabricated house by the laboratory. Plywood was found to be an effective covering for these panels, even though plywood itself was just beginning to be recognized as an engineering material.

Plywood came into its own as a true structural material through its use in aircraft design. The original stressed skin panel design method was published by the Forest Products Laboratory, a governmental agency, in the year 1940.

Tests were conducted at the National Bureau of Standards, comparing this lightweight construction method with conventional floor, wall and roof systems. The results, published in 1945, were an early basis for acceptance of plywood stressed skin construction. Most of this early use of panels was in prefabricated houses, which were anything but dramatic by present-day standards (see fig. 1). However, many of these pre-World War II houses are still giving good service.

Influence of aircraft design

Although it was not until the late 1950's that stressed skin panels began to find their way into industrial or commercial use, a significant exception took place in 1942. Mercury Aircraft, Inc. built an all-wood completely prefabricated factory, then the largest building of its kind in the world. Plywood components used included roof, floor and wall panels designed with stressed covers. By use of aircraft

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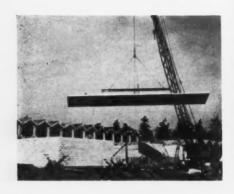
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^{*}The author, a graduate in civil engineering from Penn State University and a licensed professional engineer, is in charge of preparing technical publications at the Douglas Fir Plywood Association.

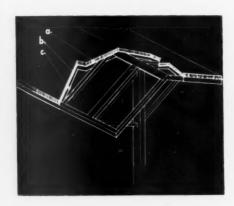












1	3	5
2	4	6

RECENT EXAMPLES OF STRESSED SKIN PLYWOOD CONSTRUCTION. 1 Seahurst Junior High School, Burien, Wash. has roof of stressed skin folded plate construction. 2 A 60' section of folded plate, for use over two 30' spans, is shown being hoisted into place. Architects for the high school are Waldron and Dietz. 3 A

 47^{\prime} stressed skin panel in the process of installation. Panels are fabricated with top and bottom skins of $3_8^{\prime\prime}$ fir plywood, wih $2^{\prime\prime}$ dimension framing. Structure is Independent Congregational Church, St. Louis; Manske and Dieckman, architects. 4 Interior of church shows steel angles used as rigid connectors between panels.

Stresses must be distributed evenly. A moving scaffold holds panels in place pending assembly in pairs. 5 Simpson Research Center uses folded stressed skin roof plates. 6 Isometric cutaway drawing shows composition of one such plate: a rigid insulation, b ½" plywood and c ¾" plywood. Paul Hayden Kirk FAIA, architect.



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design data and aircraft fabrication techniques (restricted at that time), it was possible to produce a plant that was many years ahead of its day.

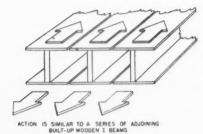
Principles of stressed skin design

In its structural action, a stressed skin panel is analogous to the wide-flange beam. The top covering carries compressive stress and the bottom covering tension stress. Due to the tendency of the top and bottom faces to slip horizontally with respect to one another, important shearing stresses exist between the plywood and the joists, and also within the joists. The top covering, in addition, must carry local loads between joists. Thus, it is subjected to plate action (see fig. 2).

Apart from these considerations, there is another factor in stressed skin analysis which tends to complicate calculations—the elastic stability of thin plates. As opposed to the solid rectangular beam, or the I and box beams in which the compression flanges are too thick to buckle, a stressed skin panel is a series of beams with thin flanges: these will buckle



FIGURE 1



MEADERS MAINTAIN
LATERAL STABILITY

JOISTS ACT BOTH AS JOIST AND WEB OF UNIT

PLYWOOD AT BOTTOM
TAMES TEMSILE STRESSES

at maximum load at a stress often much less than the compressive strength of the covering as a short column.

Test programs conducted by various agencies have led to setting up of approximate design rules which largely do away with complicated calculations, and produce safe construction together with an efficient use of materials.

Because plywood performance under given circumstances is predictable with sufficient accuracy to warrant confidence in its use, it can be said to be an engineering material. Its working stresses have been derived from the known strength properties of wood by rational analysis, with due regard to veneer construction and the direction of acting stresses.

Beyond this, the use of ordinary engineering formulas (plus consideration of the width of covering between longitudinal members which will contribute to the strength and stiffness of the panels) will enable the designer to estimate the safe load for a given stressed skin panel.*

Shear controlling factor

While the design stresses (tension, compression and shear) for the plywood will vary with the grade, it is seldom advantageous to use stress grades of lumber exceeding 1200 f. "f" denotes fiber stress in bending. This is because the critical shear section in a stressed skin panel normally occurs at the joints between the framing members and the plywood itself. There, the shear stress involved is that for rolling shear in the plywood, a value relatively low as compared to shear for lumber. An exception to this may occur in a single-skin panel or "T" section, where the plywood top skin is in compression and the lumber joist controls the tension design.

What is meant by rolling shear?

In plywood design two kinds of shear must be considered—shear through the thickness (horizontal shear) and shear in the plane of the panel (rolling shear). Resistance of plywood to horizontal shear is about double that of lumber because of the plies with grain perpendicular to the shearing force. This is evident when

*Specific data on working stresses and stressed skin panel design methods have been included as part of a TECH-NICAL DATA HANDBOOK, published by Douglas Fir Plywood Association, of Tacoma, Wash. one tries to split a piece of plywood and a piece of lumber with an ax.

This cross lamination of veneers in a plywood panel induces a so-called "rolling shear." When shear occurs in the plane of the panel, the wood fibers at right angles with the principal shearing force tend to roll. Resistance of plywood to this type of shear is about one-third that offered by wood parallel to the grain (lumber). However, checking and other factors not present in plywood tend to offset this differential somewhat. Thus, for comparison, the allowable unit stresses for PlyScord in rolling shear and horizontal shear are 68 psc. and 225 psi., respectively. The allowable unit stress in horizontal shear for Douglas fir lumber is 120 psi.

Uses and limitations

Stressed skin panels are normally made flat. However, they may be made curved, or to function as a two-hinged arch. The latter will enable a thinner section to be used on a given span. Flat panels appear to be most practical on spans up to 20′, and where the bottom skin is to serve as the ceiling.

As shown in *Tables 1* and 2, smaller framing members are usually possible with the two-sided panel. However, savings on material cost for the single-side panel due to elimination of the bottom skin may offset the lumber saving in the two-sided panel.

Plywood, because of its cross-laminated construction, has strength both along its face grain and across it. Under floor and roof loads plywood is stiffer and stronger when applied with face grain across supports. This is the normal way of applying conventional plywood sheathing. In stressed skin panels the plywood is usually applied with face grain parallel to supports because of the additional overall panel strength and stiffness. Thus, the minimum thicknesses for plywood top coverings given in tables are determined by the stiffness of the plywood between supports.

Fire resistance a factor

In some applications, the flame spread or fire resistance of the panels may limit their use. Intumescent fire paints and sheet rock panels have been applied in the past to lower the

TABLE 1 Load-span values for roof panels

	Two-sided panels Live load (lb/sq. ft.)			One-sided panels Live load (lb/sq. ft.)		
Framing size	20	30	40	20	30	40
2 × 2	8′-7″	7′-7″	7'- 0"	6'- 1"	5'- 3"	4/-91
2 x 3	11′-1″	10'-1"	9'- 4"	7'-11"	6'-10"	6'-2"
2 x 4	14'-0"	12′-9″	11′-10″	9'- 1"	7′-10″	7'-0'
2 x 5	16'-4"	15′-1″	14'- 2"	14'- 5"	12'- 6"	11'-2"
2 × 6	18′-1″	16'-9"	15′-10″	16'- 4"	14'- 7"	13'-1'
2 × 8	21'-9"	20'-3"	19'- 2"	20'- 1"	18'- 8"	17'-4'

TABLE 2
Load span values for floor panels

Live load 40 lbs./sq. ft. + 10 lbs./sq, ft. dead load

Framing size	Two-sided panels	One-sided panels
2 x 3	8'-6"	6'- 4"
2 x 4	10′-3″	8'-11"
2 x 5	12′-9″	10'- 7"
2 x 6	14'-7"	12'- 9"
2 x 8	17'-7"	16'- 2"

1 Top covering is minimum of 1/2" Ply-Scord under 25/32" wood flooring; 5/8" Underlayment grade (CS45) under resilient flooring. Bottom covering is 1/4" A-D (minimum) conforming to Commercial Standard CS45-60.

2 Framing is 1200-f (minimum) spaced 16" apart; or 12" apart for one-sided panels.

3 Deflection is limited to 1/360 of the span.

1 Additional 10 lb./sq. ft. dead load is

included.

2 Top covering is 3/8" PlyScord (minimum); bottom covering is 1/4" A-D (minimum) conforming to Commercial Standard CS45.

3 Framing is 1200-f (minimum) spaced 16" apart; or 12" apart for one-sided

Deflection is limited to 1/240 of the span.



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flame spread and increase fire resistance. Research on this subject is continuing and several promising possibilities for improving the performance of stressed skin panels exposed to fire will be discussed at a later point in this article.

It is not unusual for the cost of stressed skin panels to be somewhat higher than the cost of materials for conventional construction (except in thin shell construction). The real savings result from a reduction of onsite labor through prefabricated construction. For larger jobs, in particular, actual speed of construction can be an important factor.

Importance of fabrication

It was recognized from the outset that only with quality glue joints could shear stresses be properly transferred from the plywood skins to the framing members. Localized glueline failures cause a weakness due to concentration of stresses, out of all proportion to their size. Early panels including most of those for test purposes, employed nails to provide the pressure necessary for the glue joints. Later, various methods of applying pressure were devised whereby pressure gauges or torque wrenches could be used to give visual proof of ade quate pressure. This pressure-gluing eliminated the uncertainties associated with nail-gluing.

The glues in use by fabricators are generally of two types—casein for normal indoor or covered construction and phenol resorcinol for outdoor exposure or where severe moisture conditions exist. The latter may be room-temperature-setting or high temperature-setting, depending upon whether the panels are cold-pressed of hot-pressed.

Insulation can be pressed into stressed skin panels, and vapor bar riers are normally provided on the "warm" side of the panels to prevent condensation within. Ventilation of the panels also is "built in" to help eliminate moisture problems. This is done by cropping headers at points where they butt into the framing members; or by cutting one or two circulations openings into such headers.

Installation of panels

Planning, coordination, and installation by a contractor familiar with panelized construction will result if fast closing of a structure and reduction-site labor, with a consequence reduction in total costs.

← Circle 109 for further information

Stressed skin panels are fabricated so that they can be joined by some positive method at the joints. Tongueand-groove type joints or spline joints are two accepted methods.

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When the panels are installed over wood supporting members, either spikes or lag bolts can be utilized to secure them. The panels can be furnished with holes pre-drilled for these fasteners. Panels applied over steel or concrete supports can be bolted or they can be spiked to wood nailers previously bolted to the supports. Use of the panels in thin-shell construction is a special case and may require specially designed fasteners.

Glued stressed skin construction has been recognized by FHA and the major model building codes for many years. In the majority of cases, some assurance of proper fabrication and structural design verification is required.

Prospects and new developments

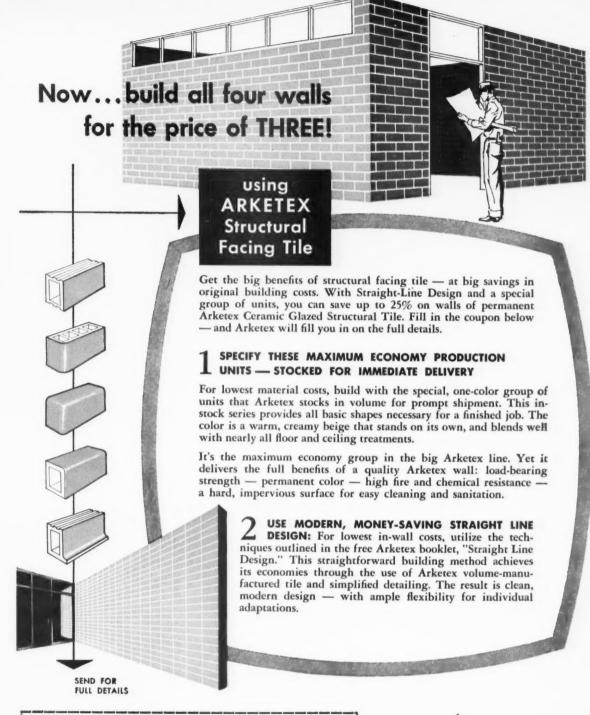
These may be found in two distinct areas: 1 in the field of design, through development of new information, or through adapting existing methods to stressed skin construction, and 2 through development of improvements to the panels themselves, e.g. new coatings and treatments.

Research by responsible agencies has provided the necessary criteria for design of stressed skin panels, and of the simplest form of thin-shell structure—the folded plate roof. These design methods are being extended into those uses grouped under the term "space planes." Recent structures employing these forms are shown on page 12.

In the area of product improvement, research to improve performance of panels under fire exposure has made considerable progress. Intumescent fire paints are available to lower the flame spread rating. Sprayed-on vermiculite treatments appear to be a means of increasing fire resistance, as well as providing an interesting acoustical ceiling.

Decorative coatings which minimize maintenance are also being evaluated. These include elastomers, epoxies, polyesters, vinyl sheets or sprays, and cementitious materials. Both field and factory applications are under study. Some of these, such as Hypalon, have already been used to some extent.

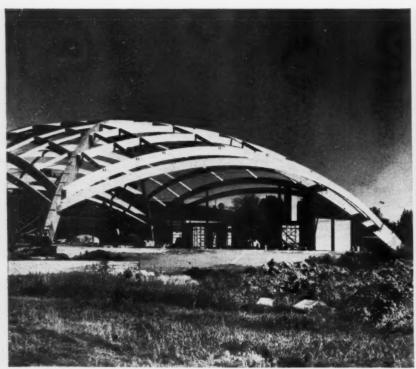
Further development of these coatings promises to reduce their cost to a more competitive level.





Circle 110 for further information

ON USING LAMINATED WOOD





FIELD HOUSE, State Teachers College, Valley City, N.D. (Clark, Elken and Holman, arch.) uses glued, laminated paraboloid arches (above and left). Span is 208'. Main arches are 14" x 55" in section. (Photos this and next page courtesy Weyerhaeuser Co.)

In the following illustrated article the author describes the principles of laminated wood, its advantages and limitations, and touches upon questions of comparative costs, joints, and adhesives.

by Albert G. H. Dietz*

Laminated wood provides sizes, shapes, and quality of timber impossible or difficult to obtain in "solid" or saw timber. Relatively thin members such as boards and dimension stock are glued together side by side and end to end to form beams, arches or other structural shapes. In contrast to plywood, in which veneers are glued together with the grain in adjacent plies at right angles or some other substantial angle, in laminated wood the grain in all layers is parallel, resulting in a member with essentially the same directional grain characteristics as solid wood.

Because the relatively thin laminations are easily and quickly dried, and because dry wood glues better than green wood, laminated timbers are dry when manufactured, do not season in place, and consequently can avoid most of the shrinkage and seasoning problems such as checking encountered in large saw timbers, which ordinarily are quite green when installed and subsequently season in place.

Advantages of laminating

The principal advantages of laminating, therefore, are the availability of curved shapes and sizes impractical or impossible to obtain in saw timber. and the possibility of eliminating shrinkage and other seasoning problems encountered in large ordinary timbers. The latter attribute is so attractive that even small beams in sizes easily available in saw timber are commonly laminated. A number of prefabricated houses employ such beams; they are common in custombuilt houses and in commercial and educational buildings. Even so, curved shapes such as arches-boomerang, gothic, circular, parabolic, hyperbolic -and chords of large bowstring trusses are in many ways the most attractive uses of laminated wood.

(Continued on following page)

*The author is Professor of Building Engineering at Massachusetts Institute of Technology. He is an authority on wood and wood construction, and has written several books on this subject. He has also served as a consultant to architects, structural engineers and industry.



PLANT USES glued, laminated wood trusses, which are spaced 20' o.c. and span 200'. Loading is based on 20 lbs./sq. ft. (live load) and 12 lbs./sq. ft. (dead load). Truss web members are of saw timber. Columns (not shown) also consist of glued laminated construction.



... Section 220-3 (b) of the 1959

National Electrical Code states ...

"For the small appliance load in kitchen, laundry, pantry, dining room and breakfast room of dwelling occupancies, (1) 2 or more 20-ampere branch circuits in addition to the branch circuits specified in paragraph 220-3 (a) shall be provided for all receptacle outlets (other than outlets for clocks) in these rooms, and such circuits shall have no other outlets."



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DETAILS OF LAMINATED WOOD CONSTRUCTION.

1 Laminated beam resting on column with steel strap connection.

2 Typical foundation buttress with tie rods beneath floor.

3 Web members are connected to chords

with bolts and heavy steel straps. Shear plates are added when the stress requires. 4 Beam channeled for concealed wiring. 5 Heel connection with steel shoe welded to steel girder. 6 Arch with open knee and struts. 7

Countersunk bolt and shear plate connection at peak. 8 Flush-type connection using purlin hanger. 9 Typical beam to column connection. (Dwgs. reproduced through courtesy of Timber Structures Inc.)

LAMINATED WOOD

(Continued from page 19)

Spans of 250' and more have been achieved.

Because of their mass and thickness, large laminated timbers, like other large timbers, are markedly slow-burning and consequently unlikely to collapse quickly in a fire.

Cost exceeds saw timber

Principal disadvantages of laminated wood may be summed up in cost per board foot as compared with saw timber. The individual laminations must be carefully planed to thickness, preferably shortly before gluing, to provide smoothly matching surfaces and thin glue lines, because thick and irregular glue lines are not only wasteful of glue, but are also weak. The original cutting of the log into thin boards or planks, followed by planing to thickness, results in considerable waste.

A laminated timber may therefore require a third more wood than a "solid" timber of the same size. More labor is required to saw, plane, spread glue, assemble, clamp and finish a laminated timber than is needed for solid wood. This results in a higher board foot cost. On the other hand, if an arch can be employed instead of a beam or truss, the total amount of wood may be less, offsetting the board foot cost differential.

Fabrication of curved sections is relatively simple. Individual laminations are spread with glue, bent to the desired shape on a simple form which may consist merely of a series of uprights fastened to a floor or bench, and clamped together until the glue is hard. When the clamps are removed there is little spring-back. Steaming is not required. The surfaces are planed to remove squeezed-out glue and to provide a finished appearance.

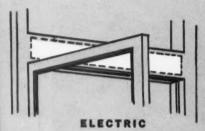
Higher design stresses possible

In the design of laminated wood members advantage can be taken of the greater strength and stiffness of dry vs. green wood; and higher design fiber stresses and moduli of elasticity are employed than can be used for ordinary saw timber, which is often relatively green when put in place.

In many structural members the maximum stresses occur only in limited zones. In a uniformly loaded beam, for example, maximum bending moments occur in approximately the

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HYDRAULIC



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Engineered to control doors from 30" to 42" in width and weighing up to 150 pounds, the Stanley Electric Operator is available as a concealed-in-the-header model for new construction or a visible mounting model for existing doors. For complete technical and application literature and the name of the MAGIC-DOOR Distributor in your area, write today to Stanley Hardware, Division of The Stanley Works, MAGIC-DOOR SALES, Dept K, 10 Lake St., New Britain, Conn.

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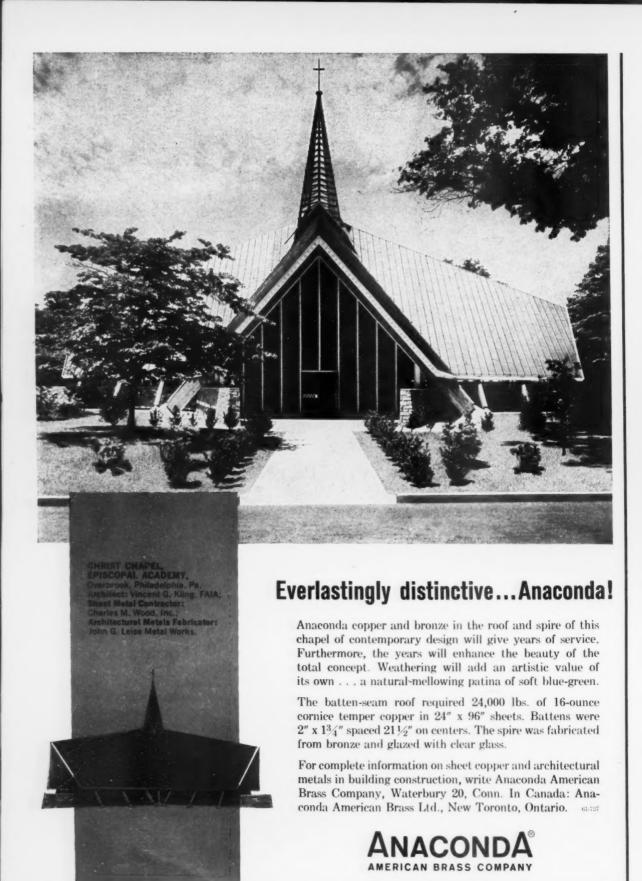
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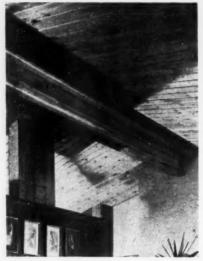
Architectural & Engineering News

middle third of length, and fiber stresses in any event are highest only near the upper and lower edges, tapering off to zero at or near the center of depth. Highest quality material need only be used in the high-stress areas and lower grade wood can be used elsewhere. It is even possible to use mixed species, with the heavy strong species placed where strength is needed, and lighter weaker species where stresses are less.

Scarf joints provide continuity

If laminations are curved or if stresses are high, end joints between pieces placed end to end must be scarfglued together to provide continuity, that is, the ends must be cut on a slope and the sloped surfaces glued together. Stresses cannot satisfactorily be transmitted across butt joints nor can such joints be satisfactorily glued. A slope of about 1 in 10 is usually employed. Butt joints are allowable in straight low-stressed laminations.

When laminations are bent to a



LAMINATED BEAMS are economical also

SCARF JOINTS are electronically pre-glued. A slope of 1 in 10 is usually employed. Butt joint are not recommended straight, low-stress laminations





TYPES OF glued laminated construction shown above include simple beam (upper left); Tudor arch (upper right); radial arch (lower left); and paraboloid arch. (Radial arch photo courtesy of Weyerhaeuser Co., other three of Timber Structures, Inc.)

curve initial stresses are set up and design stresses are reduced depending upon the ratio of thickness to radius of curvature. Because the initial stresses relax considerably with time, the reductions in design stresses are not as great as might at first be supposed.

Adhesives vary

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glued

Adhesives employed are commonly casein and resorcinol-formaldehyde, Urea-formaldehyde is also used. For the degree of moisture-resistance ordinarily needed in arches and beams employed indoors in buildings casein and urea are adequate, but if maximum moisture-resistance is wanted resorcinol-formaldehyde is best.

These adhesives are simply mixed with water, spread on the surfaces of the laminations, pressed, and allowed to harden without additional heat. Resorcinol and urea harden adequately at room temperatures, (much more slowly at lower temperatures), and attain full strength in a matter of days. They harden faster at higher temperatures. Casein hardens at vir-

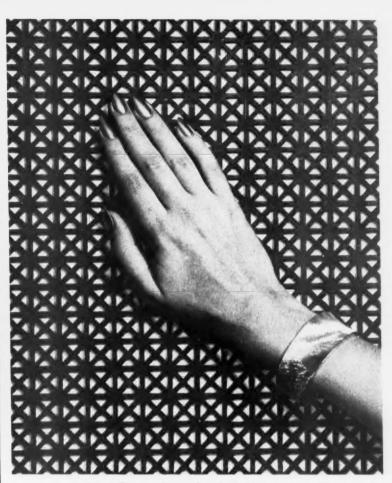
tually freezing temperatures, although its *rate* of hardening is reduced at lower temperatures. Pressure is needed with all glues to obtain good contact for maximum strength.

When properly handled, all provide glue lines stronger than the wood.

Precautions and pot-life

Precautions must be observed with all glues, but especially with the synthetics like resorcinol and urea. Once these are mixed, they begin to react and harden. There is a limited time or "pot life" during which they can be satisfactorily spread and pressed to obtain good adhesion and strength.

Laminated timbers are dry when fabricated and should be kept dry during construction. The advantages of dry material, eliminating shrinkage and other seasoning problems, can be lost if the timbers are left exposed too long to wet weather or other wet conditions during construction. They will absorb moisture, swell, and subsequently shrink, check or show other defects brought about by careless exposure to the elements.



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WOODFASTENERS

The following article evaluates the role of fasteners and prefabrication in the assembly of contemporary wood structures in terms of function, strength and efficiency. The author is associated with Timber Engineering Company, of Washington, D. C.

by D. R. Norcross

The size and diversity of modern wood structures have dictated the need for efficient methods of putting pieces and parts such as roof truss members, glued laminated arches and beams together as economically as possible. Onsite fabrication, which at one time was commonplace because it was the only method known, has given way to modern prefabricating operations performed great distances from the project location.

Such component prefabrication is necessary for two principal reasons:

1 to ship the structure in assembled form would be impractical and uneconomical; and

2 in-plant gluing of components is an important requirement intended to insure proper and effective control over quality.

Regardless of how accurate and precise prefabricating methods may be, there must be some guarantee that parts are assembled accurately and that the resulting connection is structurally safe. The method of assembly must be such that a minimum of time and effort is required to put the structure together. This is predicated by the fact that on the job site, time means money in terms of labor and special equipment (cranes, etc.) required in erection and assembly processes.

Fasteners' function

Any structure to a great degree is dependent upon fastenings to hold its pieces together. Even the simple beam must be anchored and fastened properly to resist loads in a given direction. The fastener must not only provide the necessary safety and desired rigidity and stability, but it must also be economical. Fasteners which years ago were considered practical must be considered obsolete in terms of modern construction techniques because of changes in labor and material costs or because of newly developed construction methods.

Timber fastenings have improved most in areas where there are specialized types of construction or changes in styling. As engineered timber construction is adapted to longer and



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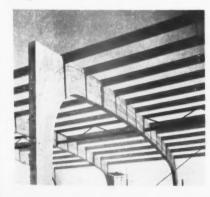
News

UPPER PHOTOGRAPH shows a 4" shear plate and grooving tool. A split ring connector and grooving tool appear below.





PARTIAL PHOTOGRAPH of supermarket ceiling shows use of lamella construction (above). A three-centered laminated arch is shown below. (Upper photo courtesy of Weyerhaeuser Co., lower photo by Piaget Studios).



multiple spans, to greater spacings, and to trusses and arches in place of beams, new fasteners are developed to provide the increased required joint efficiency. In many cases the evolvement of new types of fastening devices has led to new timber framing concepts.

Timber and tinker toy

Although the analogy may at first appear strained, it is interesting to note the comparison between modern construction methods with the assembly procedures used in the popular Tinker Toy set. Essentially, the Tinker Toy set consists of a collection of wood dowels in various lengths (structural members) which when joined to a round pre-bored hub (connector) produces, a wide variety of structural shapes starting with a simple one story house. An uncomplicated toy, yet one which permits the child to build a combination of structures. What makes the toy so simple to use? Why is it so versatile? The answer is found in the connecting device. The round pre-bored hub not only provides the strength needed to hold the assembly together, but it permits accurate assembly of parts with no further onsite (or "in the playroom") fabrication.

When the child opens his box of Tinker Toys he is ready to put his structure together. Everything is premanufactured. Similarly, when a contractor receives prefabricated parts engineered acording to project specifications by any one of the qualified fabricators of roof trusses or other types of wood structural parts, he is ready to proceed with assembly. He has the parts and he has been provided with the connecting fasteners in the form of split rings, shear plates and other special fittings designed to increase timber joint efficiency.

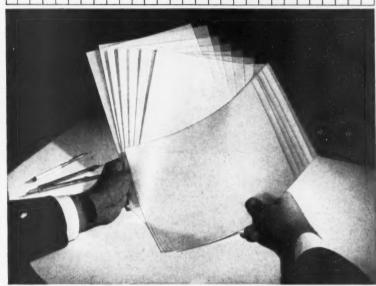
Strength and efficiency

The discussion has so far centered around the yardstick of convenience or what may be defined as the ease, or speed, with which the various parts are put together.

Convenience of "putting parts together" is certainly not the only consideration, however, when specifying the type of connection to be used in a structure; nor, in fact, is it the most important. Strength and efficiency rank higher.

The most important question is whether the connector will provide the necessary load value . . . will it be practical? As an example, we know

DRAFTING TRENDS



Appearance is not a good indicator of drafting film workability or reproduction quality—see test offer below.

In drafting films, it's the coating that counts

Film Similarities

All drafting films share one common characteristic—every major brand employs a polyester base. This polyester material may vary somewhat in grade (from clear to milky) or in gauge (from .002 to .007). However, its properties remain so nearly identical that no appreciable difference in print-back speed can be noted by exposing diazo material through the uncoated film. Accordingly, all polyester films have these unique features: dimensional stability, transparency, flexibility, moisture-resistance and tear strength.

Coating Differences

These advantages mean nothing to the engineer, draftsman or architect until a surface receptive to pencil and ink is put on the film. Post applies three distinct micro-coatings to its polyester film, baking these elements and the film at such high temperatures that they are literally fused. This process also "preshrinks" the material, endowing Polytex with slightly greater dimensional stability.

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To convince you, regardless of previous or present drafting film experience, that Post Polytex offers a superior coating with outstanding erasibility, pencil and ink adhesion, a free Polytex test kit is yours without obligation. We'll mail an 8½ x 11 drafting film sample, plus a vinyl eraser and drafting pencil assortment, packed in a Post Pocket Protector. Write for it on your letterhead today. Frederick Post Company, 3654 N. Avondale Avenue, Chicago 18, Ill.



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that a 1/2" bolt in single shear parallel to grain of two 2" thick pieces will provide a value of 645 lbs. in a given connection. Therefore, to obtain a joint value of 2980 it would be necessary to use five 1/2" bolts. On the other hand, "National Design Specification for Stress-Grade Lumber and Its Fastenings" tells us that one 21/2" split ring will provide a value of 2980 pounds in the same connection. Thus one 21/2" split ring is equivalent to five bolts. Both fastening methods provide the same joint value but the split ring provides more value per unit. Equally important, the split ring (and shear plate) lends itself to prefabrication: this means that the fabricator can pre-groove the structural members in his plant and ship them knocked-down for accurate assembly on the job site.

Very frequently the cost per unit of the fastening selected is not so important as the labor it may save on the job. A fastening requiring a multitude of fasteners and thus careful, time-consuming alignment of the structure in mid-air, may cost less in material than another type of fastening; but the time required to complete the assembly may cost five times as much in labor and equipment rental. Multiple assemblies usually require greater assembly and erection time. A connector providing the greatest load value per square inch of joint area will result in lower labor costs.

Efficiency, freedom and new forms

Glued laminated construction, which has made great strides in the past decade, offers a wide range of shapes such as arches, cambered beams, tapered beams, cantilevered beams, suspended systems, barrel and vault roofs and hyperbolic paraboloids. New improvements in gluing techniques and a rigid quality control program are in preparation by the American Institute of Timber Construction to provide the architect and engineer with permanence and efficiency of engineered timber construction. (For article on laminated construction, see p. 18-Ed.)

Another recent form of timber construction is the Lamella system. Lamella construction involves the use of a series of skewed members called "lamellas" which are formed in an arched waffle-like roof pattern. A distinctive design is obtained along with the economy of clear span construction. Here fastening devices are of (Continued on page 35)

Circle 117 for further information about ARMSTRONG pp 27-34→

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nation 34→ A special report on

ARMSTRONG VENTILATING CEILINGS

A remarkable new plenum-engineered ventilating system



A completely proven ceiling ventilating system

His new air diffusion system is essentially an air inlet system, employing a ceiling with thousands of perforations through which conditioned air is pushed from the planon. Armstrom: Ventilating Control have been thoroughly tall and job tested. The engineering bases for this new kind of ventilating system have been fully developed for virtually all types of structures. Ventilating Ceilings have been used by a number of air laterts in a variety of different jobs. One of them—the Battle Creek Country Clob—is abused at 1904. Some other recent jobs, are listed on the base page of this report.

Provides a handsome acoustical ceiling

Because an Armstrong Ventilating Ceiling eliminates the need for diffusers—or other noticeable air openings—it provides new opportunities for creative effects. In the Battle Creek Country Club, shown at right, the architects have created distinctive character with a giant-coffered ceiling, incorporating Ventilating Tile. In each tile, the tiny ventilating perforations account for two per cent of the surface. And they're virtually invisible, because they're part of the over-all pattern. Ventilating Ceilings are available in a number of different designs, in both tile and lay-in units, so you can select the one that best meets your aesthetic needs.



ARMSTRONG VENTILATING CEILINGS

their functions

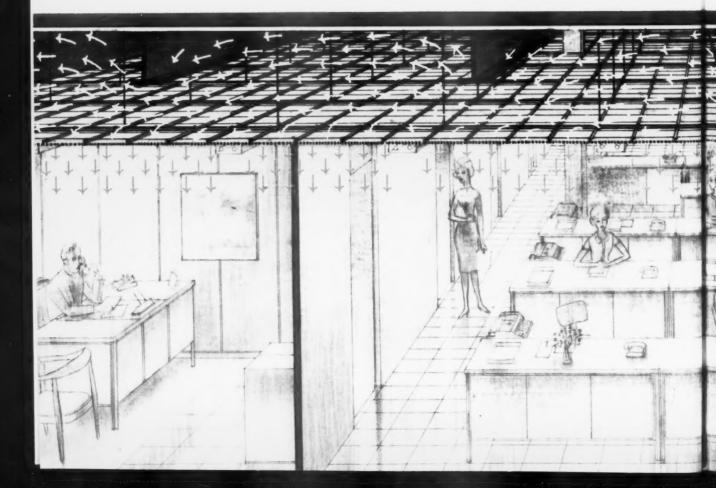
They air-condition— Oproviding uniform air diffusion

Since the ceiling itself serves as a diffuser, an even flow of air is provided into and throughout the room. An Armstrong Ventilating Ceiling enables you to eliminate drafts and stagnant areas. Even in low-ceiling areas, draft problems can be eliminated. The picture below of a section of an office building shows how conditioned air is forced, under pressure, from the central unit through ducts to the duct stub supplying each plenum chamber. The result—comfort for all occupants.

They're self-cleaning—the down pressure provides a perpetual barrier against dirt and dust

Besides cooling or heating, the air forced through the perforations in an Armstrone Variation.

Ceiling repels dust and dirt, since there is a continuous flow of air flowing downward from the ceiling. The ceiling is, in effect, self-cleaning.

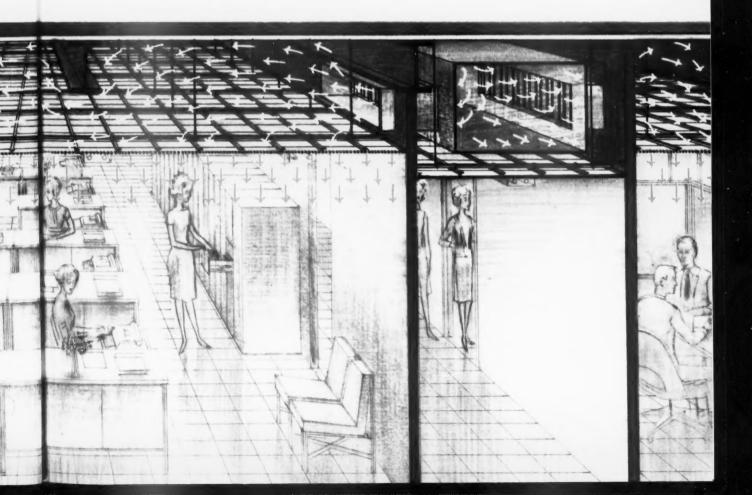


They're acoustical—hushing room noises, muffling air-conditioning sounds

Armstrong Ventilating Ceilings have the same high acoustical properties as other Armstrong Acoustical Materials. Noisy air diffusers are, of course, eliminated. And the suspended ceiling separates occupants from any noise that might be transmitted through air-conditioning supply ducts.

The ventilating ceiling can incorporate time-design-rated fire protection

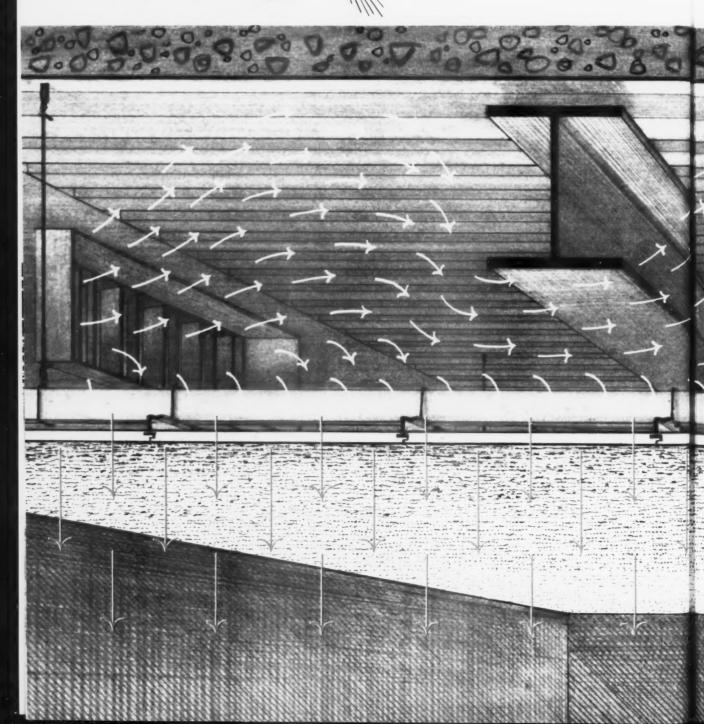
Armstrong Acoustical Fire Guard is available for use in Ventilating Ceilings. Floor-ceiling assemblies, using Ventilating Fire Guard throughout the ceiling, have been tested at Underwriters' Laboratories. The tiny ventilating perforations in the ceilings accounted for over-all open areas of two per cent. Beam-protection ratings up to four hours have been obtained for Ventilating Fire Guard Tile (UL Report 4177-6), and up to three hours for Ventilating Fire Guard Lay-In (UL Report R-4177-7).

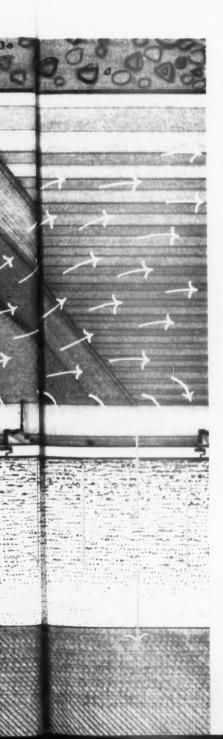


ARMSTRONG VENTILATING CEILINGS



their technology





The plenum chamber acts as the duct... the ceiling acts as a diffuser

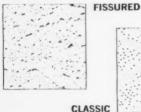
This system is remarkably simple in principle. As the sketch demonstrates, conditioned air enters the plenum chamber through the supply-duct stub by a low-pressure air-inlet system. It is dispersed throughout the chamber and is forced down through the ceiling into the room. Any conventional return-air system may be used with Armstrong Ventilating Ceilings. The system has proven very effective even in large plenum chambers. For example, in one installation, air was projected across 80' in a 22" plenum (despite the obstruction of 14" I-beams) and achieved uniform distribution in the area below.

Special plenumengineering data available

This data provides all the necessary factors and formulae for the correct design and engineering of plenum chambers where. Armstrong Ventilating Ceilings are used as the air inlet system. This step by-step procedure has been specially developed for the use of ventilating engineers, and is available through your Armstrong Acoustical Contractor or Armstrong District Office.

DATA ON ARMSTRONG **VENTILATING CEILING** MATERIALS

For complete information on Armstrong Ventilating Ceilings, call your Armstrong Acoustical Contractor or one of the Armstrong Offices listed below. Or write to Armstrong, 4200 Miller St., Lancaster, Pa.





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Travertone.

12"x12" fissured, mineral-wool tile, with square or beveled edges.

12"x12" mineral fiber tile in the Classic and Full Random designs, with beveled edges.

Minaboard Lay-In.

Nominal 24"x24" and 24"x48" units in the Full Random and Classic designs for exposed grids.

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12"x12" fire-retardant tile in the fissured. Classic and Full Random designs with beveled edges.

Fire Guard Lay-In.

Nominal 24"x24" and 24"x48" units in the Classic design for Fire Guard grid.

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Some recent installations of Armstrong Ventilating Ceilings:

Battle Creek Country Club, Battle Creek, Mich. architect: Haughey, Black and Williams, Battle Creek mechanical engineer: Meckler Engineering Co., Toledo, Ohio

general contractor: Phelps-Wagner Builders, Battle Creek acoustical contractor: B. C. Schuemann Co., Battle Creek

Dinwoodey Furniture Company, Salt Lake City

architect: Snedaker-Budd-Monroe & Associates, Salt Lake City mechanical engineer and contractor: Richard C. Brown, Mayne Plumbing and Heating, Salt Lake City general contractor: Cannon Construction Co., Inc., Salt Lake City acoustical contractor: Utah Pioneer Corp., Salt Lake City

Northern Federal Savings and Loan Association, St. Paul, Minn. architect and ventilating engineer: Associated Architects and Engineers, Inc., St. Paul mechanical contractor: Pierre Aircon Co., St. Paul general contractor: William Baumeister Construction Corp., St. Paul

acoustical contractor: St. Paul Linoleum and Carpet Co., St. Paul

Arizona Bank, Home Office Motor Bank, Phoenix architect: Lester Byron, Phoenix general contractor: Ray P. Petersen Contractor, Inc., Phoenix acoustical contractor: Barrett-Homes Contractors, Phoenix

Armstrong General Office Building, Lancaster, Pa. consulting engineer: Charles S. Leopold, Inc., Philadelphia mechanical contractor: B&G Olsen Co., Inc., Richmond, Va. acoustical contractor: Berger Acoustical Co., Inc., Haverford, Pa.

Lit Brothers Restaurant, Philadelphia architect: O. L. Fallan, AIA, Philadelphia chief designer: John Jones, Philadelphia acoustical contractor: Berger Acoustical Co., Inc., Haverford, Pa.

John Deere Office Building, Moline, III. architect: R. B. DeJeager, company architect, Moline, Ill. ventilating engineer: Ward Jensen, company engineer, Moline general contractor: Axel Carlson Company, Moline acoustical contractor: Builders Sales & Service Co., Moline

4747 Building, Phoenix

architect: Ralph Haver & Asso., Phoenix mechanical engineer: Lowry & Sorensen, Phoenix general contractor: Gilbert & Dolan, Phoenix acoustical contractor: Barrett-Homes Contractors, Phoenix

St. Paul's Church Home, Inc., St. Paul, Minn. architect: Buetow and Associates, St. Paul mechanical contractor: Healy Plumbing & Heating Co., St. Paul general contractor: J. S. Sweitzer & Son, St. Paul acoustical contractor: St. Paul Linoleum and Carpet Co., St. Paul

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Armstrong ACOUSTICAL CEILINGS

WOOD FASTENERS

(Continued from page 26)

prime importance for they insure both accurate assembly of the "lamellas" and strength of structure.

Roof trusses continue to serve as the most efficient means for framing the roofs of buildings ranging in span from as little as 20' up to 250'. Common today are such unusual truss types as diamond trusses, inverted trusses, butterfly trusses, cantilever trusses and special three-hinged arches often referred to as arch frames. As in the case of glued laminated and lamella construction, wood roof trusses rely heavily upon their fastening devices for strength and an efficient method of assembly.

Outlook for the future

Better fastenings and more reliable standards now produce joints designed with the same accuracy as other parts of a structural frame, so that balanced construction results. Details of structural connections are no longer left to unskilled job site judgment. But, even though progress has been made in the design of timber joints, further development must come: wood used in an increasing number of new and different types of structures will inevitably call for more efficient methods of assembly. Concealed connections are particularly important in order to eliminate any possibility of marring appearance of a wood structure by a connecting device.

Since shipping is—and is likely to remain—a vital cost factor, efficient mechanical fasteners will be required to assure accurate assembly of prefabricated parts and pieces on the job site. Inherent in any fastener there must be a balance between strength of connector and its practical application, at both plant and construction site.

Paul



EXHIBITION PAVILION consists of a series of hyperbolic paraboloids. (Photo courtesy of Art Commercial Studios.)

Gircle 117 for further information ← about ARMSTRONG pp 27-34



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RECENT WOOD RESEARCH

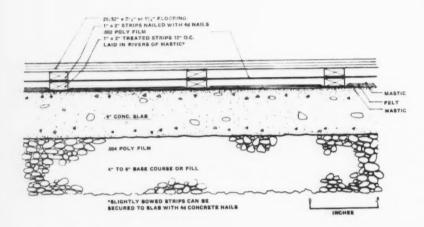


FIGURE 1



FIGURE 2

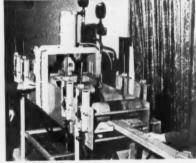


FIGURE 3

As a building material, wood ranks as one of man's oldest, but it is not until the last few decades that industry research has begun to overcome some of the problems characteristic of wood as an organic and traditionally hand assembled material. In the following report A/E NEWS presents some new developments in wood technology resulting from such research. Each was designed to bridge the gap between this manual tradition of wood assembly and the economic necessity of controlled, factory preparation of building components and assemblies.

Bucky builds "basketry dome"

Under the instruction of R. Buckminster Fuller, who is presently research professor in design at Southern Illinois University-and of Harold Grosowsky, designer and instructor of design at S.I.U.—the senior class is soon to begin construction on a 72' diameter "basketry dome," enclosing 4,000 sq. ft. of space. The components of the dome will be interwoven to form a basket-like experimental structure of conventional douglas fir 2" x 4"s.

The calculations-based on Bucky Fuller's synergetic-energetic geometry and spherical trigonometry-and the actual manufacturing and construction of the dome will be done by nine under-graduate students.

Aim of the project is production of a shelter system of possibly major significance. Such a dome, if constructed of readily available standard size building materials, may result in a

marketable low cost structure which could be handled and distributed by local lumber companies throughout the United States at a cost of less than \$1 per sq. ft. of floor space covered.

Parts could be standardized directly at the lumber mill and made into "basketry dome packets" for fast and easy erection by purchasers; also the use of color coding and a simplified joining system could cut construction fees drastically, due primarily to the extremely short amount of time necessarv to erect such a structure.

The mathematical calculations were completed in the last week of October. The site has been selected, but not yet surveyed. Manufacturing and construction were scheduled to begin during the week of November 5.

Clip oak strips over concrete

A newly developed system of assembling strip oak flooring over concrete slabs, based on joining strips laterally with a metal clip (inserted in slots cut into the tongues and grooves of a special configuration), is being tested under sponsorship of the National Oak Flooring Manufacturers Association.

While still in the laboratory and field testing stage, results so far are said to show considerable promise for the new assembly method.

Clips are tapped in place in the tongue of one piece; the next piece is then driven up with the clips, fastening the two strips together. Slightly crooked strips are also feasible under this system. A significant factor in stepping up speed of installation is the possibility of assembling several courses of room length in advance, perhaps in a vertical jig, and then affixing the whole unit to the floor.

After the concrete slab is cured. mastic is laid down, a layer of felt added, and more mastic is placed over it. A series of 1"x2"s is then put in place, in staggered fashion, and covered with a film of polyethylene; this is followed by a second series of 1"x2", and finally by the oak strips (see fig. 1).

The system is being tested by Arthur D. Little, Inc., of Cambridge, Mass.

Wood + steel = trussjoist

Wood and steel were recently combined into a single long-span "trussjoist," using wood as the flange material and steel tubing as the web. The truss is factory-made, and is delivered ready for installation. It is said to require no heavy construction equipment, such as cranes, for raising into place, in view of its weight, which varies between 3 and 31/2 lbs./lin. ft. (see fig. 2).

The trusses are designed for small buildings (for example, schools), not requiring a high angled roof. Their open design permits installation of heating ducts, wiring and other utilities between the webbing. Joists of other structural elements can be nailed to the wood flanges.

These chords are made of 1900 f grade kiln-dried Douglas fir 2"x4"s. The web is made from cold-rolled. welded steel tubing. Web members are 1" o.d. The pins connecting the steel to the wood flanges are 7/16" and 11/16". Maximum available span is 60'.

To attain this span, the 2"x4"s are connected by scarf jointing and by gluing shorter lengths together, with the glue line necessarily matching the strength of the wood. Depth varies from 16" to 24". Deflection limits are designed not to exceed 1/360th of the span under design load conditions. Fire-rating of 11/2 hours can be achieved with the help of acoustical fireguard lay-in units. The truss is made by Lumber Manufacturers, Inc., of Portland, Ore.

Machine-not eye-to grade lumber

A pre-testing machine to test and certify framing lumber for strength has been developed by the research laboratories of the Western Pine Association.

The mechanical device is designed to take guesswork out of strength rating of construction lumber. The "mechanical stress-rater," as it is called, will help verify the load-bearing capacity of lumber as it passes through the device (see fig. 3).

The machine was first conceived as a way to test the strength of fingerjoints in framing lumber, but later was taken a step further so as to test the entire length of any piece, spliced or whole.

Lumber can be run through for stress rating at a pace reaching 200 lineal feet per minute. Controlled pressures from steel rolls form the basis of the device. When a piece of lumber fails to pass, a red light flashes on the machine and the reject stamp is applied.

Results so far indicate that a larger percentage of lumber will qualify than is possible with visual grade separation. Strength values in lumber are expected to be used more fully and with greater assurance.

WEATHERPROOFING THE THIN SHELL CONCRETE ROOF STRUCTURE

Thin shell concrete roofs are usually characterized by two conditions: they have a variable—and sometimes quite steep-degree of pitch; and their interior surfaces are often left exposed. Resulting questions of adequate weatherproofing are discussed in the following article in terms of the effects of temperature differentials, humidity ratios, roofing color and thickness, time of year when shell is poured, and control. The author, who is professor of mechanical engineering at the University of Minnesota, attended this year's first series of BRI Conferences in Washington, where he delivered the paper on which this article is based.

by C. E. Lund

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Many of the factors affecting the weather-proofing of thin shell concrete roof construction are similar to those which effect the more common types of concrete decks. Due to the variety of configurations and design in thin shell concrete decks, the problems introduced will require more detailed study to avoid difficulties. The factors of inside temperature and humidity: solar radiation and outside climatic conditions must be evaluated for the specific type of building use. Cold climates require special precautions in roof design to avoid condensation on the interior surfaces as well as within the roofing and deck structure itself. Interior surface condensation is dependent upon the interior room air temperature and relative humidity which must be maintained; and upon the outside air temperature.

These variables are usually fixed by requirements and location. To avoid interior surface condensation, the temperature of the interior surface of the ceiling must be higher than the dew point temperature of the inside air. Roofing materials and concrete are both high conductors of heat. To increase the inside ceiling surface temperature, insulation must be added either above or below the concrete deck. In either location, the insulation requires special consideration to avoid moisture difficulties. Industrial requirements may add moisture to the interior of the building or special processes may require a certain humidity level. Where a high occupancy load is encountered, the moisture given off by the occupants may raise the humidity of the inside air above the critical dewpoint of the interior ceiling surface temperatures. A person gives off on the average of 1/6 of a pound of water per hour. For greater activity the rate of moisture given off is increased 50 per cent or more.

Relative humidity

The following table illustrates the relative humidity which may not be

exceeded to avoid interior surface condensation at an inside air temperature of 75°F and for different outside air temperatures. The table is based upon non-insulated concrete decks and decks with one and two inches of insulation.

	Т	Thickness of Insulation		
Outside Air °F	None	One Inch	Two Inch	
-10	24	61	73	
0	27	63	76	
10	33	68	79	
20	39	70	82	

For a non-insulated deck, the maximum relative humidity which can be maintained varies from 24 per cent at $-10^{\circ} F$ outside air to 39 per cent at $+20^{\circ} F$. With the addition of insulation, the relative humidity is increased to 61 per cent and as high as 82 per cent without a danger of surface moisture dripping.

Another type of moisture problem

may be encountered within the deck itself depending upon the type of insulated deck. With the roofing applied directly to a three inch concrete deck, the residual moisture within the concrete is evaporated only from the exposed interior surface. During the winter months, the residual moisture will migrate in two directions: (1) to the air below and (2) to the underside of the built-up roofing. However, if the vapor pressure within the building is higher than the vapor pressure within the concrete, the moisture migration will be toward the low vapor pressure area which is below the roofing. Roofing applied according to specifications is for all practical purposes impermeable to vapor and may be considered a vapor barrier.

Roofing poor insulator

On the other hand, roofing is not a good insulator so that the temperature drop across the roofing is negligible which results in a negligible vapor pressure drop during cold weather. As the rate of vapor movement across a material is dependent upon the resistance and the vapor pressure drop across the material, it is apparent that the moisture or vapor movement across the built-up roofing is negligible. Where the mopping between layers of felt is spotty or not continuous to obtain a solid homogeneous mass, the vapor will continue to seek the lowest vapor pressure areas, between the plies of felt, and will condense at these points. Although the pressure gradient between plies is small, it is sufficient to induce the vapor to travel toward the outside during the cold weather. The top pour or mopping of bitumen prevents the vapor from continuing on to the outside and thus it condenses between ply either as a liquid (water) or as a solid (ice). To avoid this type of vapor movement, the top surface of the concrete should be given a continuous coating of primer to seal its surface.

Summer and winter

During the summer months, the temperature of the deck is considerably higher than during the winter months due to the additional heat from solar radiation. Under these conditions, the vapor pressure in the concrete deck may be 10 times greater than the vapor pressure within the interior of the building. Because of the high vapor pressure in the concrete, the moisture movement during

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FENESTRA CHANGES CURTAINWALL

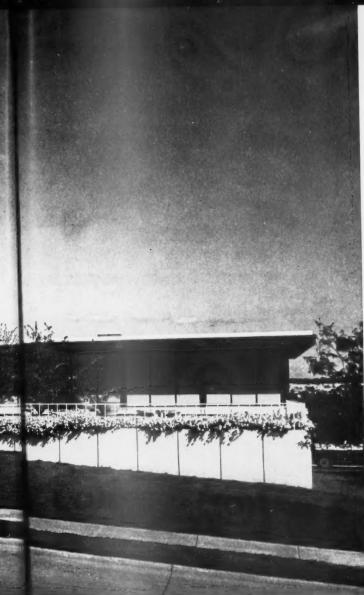
Change No. 1: A revolutionary new roof-curtainwall system that eliminates structural steel in one-story buildings

Loadbearing Fenmark, is a pre-engineered roof-wall system that combines Fenmark steel curtainwall with steel cellular roof panels. Together they form one structural element. Only sheer partition walls or end walls are needed to take the lateral load. Structural steel is eliminated. Design time is reduced and on-the-job labor costs are cut.

Change No. 2: A completely weathertight envelope. Because steel expands and contracts at half the rate of aluminum, sealing Fenmark steel curtainwall is greatly simplified. In fact, so successful has Fenmark been that there have been no reports of any leakage on any Fenmark structure.

Change No. 3: Narrow sight-lines. Fenmark multions are steel, so they can be narrow without sacrificing needed strength. Aluminum curtainwalls require larger multions to compensate for wind loading conditions.

Change No. 4: Stainless-steel beauty . . . at the cost of aluminum. The Fenmark steel curtainwall system may be completely capped with stainless steel. The cost complete:



Leo A. Daly Company, Omaha, Nebraska

CONCEPTS with STEEL

near the price of aluminum curtainwall. The effect: elegant, durable stainless-steel curtainwall. Or you may choose plain or porcelainized aluminum capping,

Change No. 5: Extra-strength structure: Steel has three times the strength of aluminum. It will withstand wind loads that are simply not possible with similarly shaped aluminum curtainwall. Fenestra's Fenmark steel curtainwall also offers greater resistance to fire than aluminum.

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Fenmark is a proven curtainwall system. If you have not already investigated this better kind of curtainwall, call our local sales engineer (he's listed in the Yellow Pages), see Sweets File 3b/Fe or write: Fenestra Incorporated, Dept. 220 Delaware Ave., Buffalo 2, New York.

Fenestra

STEEL CURTAINWALL SYSTEMS . CELLULAR STEEL ROOFS
FLOORS, WALLS . METAL DOORS . GUARD SCREENS

the summer is accelerated toward the interior of the building. More moisture difficulties occur during the spring following the pouring of concrete decks during the winter months than when the decks are poured in the spring or early summer. The latter conditions permit the accelerated drying of the concrete deck prior to the coming of the cold weather.

There have been many instances throughout the United States where moisture problems have arisen within buildings due to the season when construction takes place. A building may be enclosed during the early part of the winter without adequate heat or ventilation during the completion of the interior. Moisture from curing of concrete floors, partition walls, plastering, etc., contributes toward high interior humidity conditions. The result is surface condensation upon interior surfaces of walls, windows, and roof decks. In addition, the moisture, because of its high vapor pressure, may be transmitted into the improperly designed roof deck to cause "ghost leaks."

Insulation

With the addition of insulation below the deck either as a form board. for esthetic purposes, or for reasons of economy and comfort, the problem becomes more complicated. Most types of insulation formboards have a low resistance to the passage of water vapor which permits moisture to accumulate between the interior insulation and the adjacent surface of the concrete deck. This moisture may be in a liquid or in a solid state, such as frost or ice, depending upon the outside air temperature. For example, a 3" concrete deck with 1" of insulation as the interior surface will have the following temperatures between the concrete deck and the insulation:

Outside air °F	Temperature below con- crete deck	Maximum permissible relative humidity %
10	3	5
0	11	7
10	20	11
20	28	18

Due to the low temperatures below the deck, the inside relative humidity at an air temperature of 75°F cannot exceed 5 per cent for an outside temperature of -10°F, or 18 per cent for an outside temperature of 20°F. Such

← Circle 119 for further information

low relative humidities rarely exist within a building so that the condensation of moisture may be anticipated below the concrete deck. The rate of moisture or frost accumulation is dependent upon the vapor pressure drop from the inside air to the underside of the deck: the resistance of the insulation board to vapor migration; and the length of time the condition exists. The vapor pressure drop is dependent upon the inside air temperature and humidity and the outside air temperature. Recognizing that insulation is permeable to vapor movement, this type of design should be avoided.

Treat interior surface

The resistance of the insulation may be increased by treating the surface exposed to the interior air with some type of vapor resistant material or paint. Essentially this is similar to applying a vapor barrier over the interior surface of the insulation. However, this is not practical in many cases as it effects the interior design requirements. Another problem is introduced if an interior vapor barrier is applied. Usually the roofing is applied as soon as the deck surface is satisfactory. As roofing is highly impermeable to vapor movement, the uncured concrete does not have an opportunity of dissipating the trapped mois-

The insulation which may absorb some moisture during the pouring of the concrete is also unable to dry out. Eventually, due to the combination of heat from solar radiation and the higher heat transfer of the moist concrete, deterioration of the insulation may take place. Sprayed on types of interior insulation are usually highly permeable to vapor and would be subjected to the same difficulties. Inorganic foamed types of insulation may be used between the form board and the concrete decks providing that all joints are positively sealed throughout its thickness. These types of insulating materials are impermeable to vapor migration, except that the joints permit a high rate of vapor migration if not positively sealed.

Location

The most favorable location for the insulation is above the concrete deck. Contour irregularities introduce problems regarding the type of insulation which will readily lend themselves to the contour of the deck. One-half inch layers with staggered joints may provide greater flexibility to attain con-



with longer span structural panels—to 35'—that double as acoustical ceilings



Acoustic "D" panel

This longer span "D" panel eliminates the need for bar joists. It cuts costs, too, by performing five different

building functions: acoustical correction, insulation and roofing support, integral lighting, long-span structure, and finished ceiling. This ceiling is permanent; there is no tile to ever become loose or unsightly.

For spans up to 32', Fenestra's "stiffened web" design LS deck gives you an exceptional weight-to-strength ratio for maximum economy, LS deck can be left exposed. Or the

ceiling can be finished at any time after construction with recessed lights or lay-in acoustical tile.



"LS" deck with lay-in acoustical tile and recessed lights

with a "big cell" for electrical capacity many times larger than other systems



Holorib Elect-Re-Form

Fenestra's big "D" cell gives architects an underfloor electrical system—up to 7½" deep—that will accommodate the multiplying electrical needs of tenants.

Structurally, the concrete fill forms a natural "T" beam. This gives you a bonus factor of up to 8 times the design load . . . damping out vibration and requiring less structural steel. Flat bottom plate provides lateral resistance.

Or for economy, where electrical demands are smaller, versatile Holorib Elect-Re-Form (electrified concrete steel reinforcing form) can be supplied with one, two or three cells as the job requires. There are no wasteful "dead" cells.

Fenestra offers a full line of detention, protection and safety screens for hospitals, clinics, commercial buildings and schools. Frames can be either aluminum or steel. Screens are manufactured to any size.

Look to Fenestra for new concepts in building materials. See Sweets File; call your Fenestra man (he's in the Yellow Pages); or write Fenestra Incorporated, Dept. AE-111, 220 Delaware Ave., Buffalo 2, N. Y. (Panels and Guard Screens); or 4040 W. 20th St., Erie, Pa. (Doors).



STEEL CURTAINWALL SYSTEMS . CELLULAR STEEL ROOFS, FLOORS, WALLS . METAL DOORS . GUARD SCREENS



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tour requirements. The concrete deck should be primed and followed with a vapor seal course. A single ply felt solidly mopped to the deck, followed by solidly mopping the first layer of insulation to the felt, will provide a satisfactory vapor seal. A two ply vapor seal course only guarantees that a good seal will be obtained when there is a question of workmanship and quality control. There are several proprietary types of vapor barriers which provide excellent protection against moisture when applied according to the manufacturer's recommendations. These types are not dependent upon the mopping to obtain a good vapor seal.

Economy of operation during the heating season dictates the insulation requirements. Solar radiation under summer conditions and re-radiation from the underside of uninsulated roofs will add discomfort to the occupants below.

Thickness

The most common types of thin shelled decks consist of three inch reinforced concrete. The overall transmittance value for an uninsulated concrete deck is 0.712 Btu per hour per square foot of area. Adding one inch of insulation above or below the deck reduces the transmittance coefficient to 0.237, or a reduction of 67 per cent in the heat loss through the roof. Two inches of insulation have a transmittance value of 0.14 or a reduction of 82 per cent. The law of diminishing returns governs the most economical thickness of insulation to be used. The savings in fuel costs for a particular area may be accurately calculated to determine the quantity of insulation to be used.

Re-radiation from the underside of a roof may cause discomfort to the occupants as it increases the discomfort index. To compensate for this increase in radiation loss from the human body to the underside of an uninsulated roof, the inside air temperature must be increased approximately five degrees to re-establish the comfort index. For example, at an outside temperature of -10°F and an inside temperature of 75°F, the inside surface temperature of uninsulated three inch concrete deck is 38°F; for one inch of insulation added 63°F and for two inches 68°F.

Black and white roof

Solar radiation will produce roof surface temperatures in excess of

← Circle 119 for further information

CONSULTING ENGINEERS COUNCIL

This is another in a series of articles dealing with associations and societies which serve the professional interests of the architect and the consulting engineer. The Consulting Engineers Council is holding its semi-annual meeting this month at Miami Beach, Florida.

The Consulting Engineers Council was organized in 1956 to advance the practice of independent professional engineering, "through mutual understanding, cooperation for common purposes, and benefits, and maintenance of ethical standards among consulting engineers, through improvement of consulting and engineering practices, and through cooperation with and dissemination of information to public, business, and other professional organizations, which explain and enhance the professional and economic status of the independent engineer in professional practice."

Objectives

The objectives and purposes of the Council, as set forth in the Articles of Incorporation, are in sum:

1 To insure that the ethical, professional standards required of an independent consulting engineer are maintained in accordance with the "Code of ethics" of the Council.

2 To promote harmony, cooperation, and mutual understanding among independent consulting engineers engaged in private practice.

3 To cooperate with other organizations, public bodies . . . in all matters of common interest . . .

4 To act as a clearing house and information center . . .

5... To advise on enactment of pending legislation on a national basis affecting the interest of the public and the independent consulting engineer...

General activities

Perhaps the most pressing issue facing the Council today is, in its opinion, defense of consulting engineering in the form of private practice against "serious inroads" by, for instance, the Federal government.

Harold P. King, recently named President of the Council, outlined other problems that face the organization. These include: competitive bidding, rules of practice, engineering education, contractor relations, model law, registration, "free" engineering and the so-called "package deals."

Consulting engineers and the AIA

A major aim of the Council is promotion of the idea of "team work" in the construction field. The Council feels a need for closer cooperation, coordination and understanding by all elements of the building "team"—the architect, the engineer, the contractor, and the manufacturer.

In addition, the Council advocates establishment of a "mutually-beneficial, direct working relationship with the AIA." The Council feels there are many areas of mutual concern which would keep a joint AIA-CEC Cooperative committee interested and occupied. The Council presently has similar joint committees with the Producers' Council (A/E NEWS, April 1961, p. 41), the Associated General Contractors of America, and with the Council of Mechanical Specialty Contracting Industries.

Membership

Consulting engineer are members of the CEC either as individuals, or as representatives of their firms, by virtue of membership in a state, area, or regional Member Organization, or directly as Membersat-Large. The members must be professionally licensed practicing consulting engineers, as sole proprietors, as partners in a firm, or as officers of corporations offering engineering services. They must not, according to the Council, have commercial sales or contracting affiliations which the CEC feels might cause a conflict of interest with their independent practice as consulting engineers.

Further information on membership is available from the National Office, Consulting Engineers Council, 322 Reisch Building, Springfield, Illinois.

160°F for dark colored roofs and in excess of 130°F for light colored roofs depending upon the outside air temperature. The inside surface temperatures of a non-insulated deck will be 119°F for the dark roof and 102°F for the light colored roof when exposed to solar radiation. With the addition of one inch of insulation, the inside surface temperature will be 88°F and 83°F for the dark and light colored roofs respectively. For two inches of insulation, the inside surface temperatures will be 83°F and 80°F the deck is an important influence on an inside air temperature of 75°F. The re-radiation to the human body during the hot summer months from an uninsulated three inch concrete deck because of the hot surfaces underneath the deck is an important influence on summer comfort. Capital investment in cooling equipment and the attendant maintenance cost would be prohibitive and inadvisable unless the roof was properly insulated.

Avoid moisture

To avoid roof blisters, "alligators" and similar failures, the insulation must be protected against moisture and applied during dry weather to a dry deck. Any moisture sealed into an insulated deck will expand in volume and create pressures which are greater than the adhesive strength of the roofing materials. These conditions are produced by the radiant heat from the sun and high outside air temperatures. It also occurs when the built-up roofing materials have the least bonding properties because of the higher temperatures causing them to become less viscous. When water changes to a vapor state, the volume change is 1500 times. Air and vapor pressure changes will attain 5 psi or 720 psf or more. The weight of a graveled roof is approximately 600 lbs. per square or 6 psf. Contrary to some opinions, the weight of a roof is insignificant to overcome the blistering of a roof.

When felts are applied to a deck, the first ply should be solidly mopped and broomed to the deck with successive plies similarly applied. Every attempt should be exercised to obtain a monolithic type of a built-up roof to avoid any interstices or voids between plies where air and vapor may be trapped. For sprayed on types of roofs, sealants and other similar proprietary types, a monolithic roof is more easily obtained which is less vulnerable to blistering. However, the manufacturer's specification must be

rigidly followed to avoid roof failures. Most of the faulty roofs of this type which have been investigated may be attributed to poor workmanship and not using the required quantities of bitumen.

Expansion and contraction

Expansion and contraction of the deck and the roof must be given special attention. Insulation below the deck increases the temperature range to which the concrete deck is exposed. The insulation retards the heat in the summer from the outside and from the inside during the winter. In severe climates, a range of 200°F should be used for design purposes for dark colored roofs. The temperature range may be slightly less for light colored roofs. Expansion joints should be specified for both the deck and the roofing.

When the insulation is applied above the deck, the temperature range for the concrete deck is negligible as it is insulated from the outside climatic changes. This reduces the movement of the concrete deck due to expansion or contraction to a minimum. However, the roofing remains exposed to the higher temperatures, which will necessitate expansion joints. With insulation between the roofing and the concrete deck, the roofing is subject to a range of temperature change of approximately 200°F. As a result the roofing becomes more brittle in the winter and more fluid during the sum-

Racking of roof decks is one of the factors which have caused many roof failures due to splitting of the roofs. Continuity of structural steel from a heated area to an unheated area produces abnormal expansion and contraction, with excessive deck movements. This may cause serious roof problems, especially where concrete decks are continuous from heated to unheated areas such as overhangs.

Combined responsibilities

The responsibilities of obtaining a satisfactory roof and deck rest with architect, general contractor, deck applicator, roofer and materials manufacturer. They must adhere to good design practices; rigid specifications; good workmanship and quality control. The architect should advise his client of the pitfalls where economy is desired. Such economy should not be practiced at the expense of downgrading the exterior components of a building which are exposed to the extremes of climatic conditions.

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18' overlapping Formica® wall panels, Steinberg's Groceteria, Montreal

To a designer who seldom answers advertising

Here are the facts quick and to the point.

The Formica Corporation has just announced:

- 1. Two new finishes especially for vertical surfacing.
- 2. New mahogany and white Tidewood patterns.
- 3. A new fire retardant grade available in the full color and pattern line.

These developments are of immediate importance to designers and specification writers concerned with commercial and institutional construction and

In the interest of disseminating samples and specification information as quickly as possible, a complete package is ready for you. We sincerely believe that this material will update working knowledge of Formica® laminated plastic. We urgently suggest you write for it.



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PRODUCTS, EQUIPMENT, MATERIALS

Report of recent developments by industry, based on data furnished by manufacturers. Inquiry cards for further information face pages 1 and 102.



ACOUSTICALLY TREATED REDWOOD PANELING

MFR'S DESCRIPTION: redwood paneling with an acoustical treatment.

USES: sound control

SPECS/FEATURES: system consists of redwood slats specially milled from 1"x3" lumber, applied over a glass fiber blanket with a slight space between slats. Two patterns are available: the baffle pattern which masks the acoustic material completely, and the plain pattern which is suitable for ceilings and similar locations where complete concealment of blanket is unnecessary. Spacing of the redwood paneling is said to improve the acoustic performance of the glass fiber backing.

AIA FILE NO. 39-B/23-G ASSN: CALIFORNIA REDWOOD ASSN. Circle 201 for further information



OAK PARQUET FLOORING ONLY 1/8" THICK

MFR'S DESCRIPTION: flooring is laminated factory-finished oak.

USES: flooring

SPECS/FEATURES: new hardwood tile is flexible and permanently covers minor subfloor contours that can damage many other materials. A natural finish is baked on at factory. Application is with a one-coat quick adhesive that works both on concrete and plywood subfloors. 9"x9" tile matches thickness of most standard floor coverings.

AIA FILE NO. 23-G MFR: GEORGIA-PACIFIC CORP. Circle 202 for further information



HARDWARE FOR JOB-SITE TRUSS FABRICATION

MFR'S DESCRIPTION: hardware for fabrication of trusses on job-site. USES: timber fabrication

SPECS/FEATURES: strong fastener incorporates an improved system for fabrication of trusses. A standard 28' 4/12 truss can be assembled in

12 man-minutes under job site conditions by means of this hardware. AIA FILE NO. 27-A

MFR: THE PANEL-CLIP CO. Circle 203 for further information



ACOUSTICAL CEILING SHELL WITH GOOD SOUND ABSORBTION

MFR'S DESCRIPTION: a 2' sq. vaulted fiber glass ceiling panel, 1/3 the thickness of flat sound-control panels. USES: commercial, institutional and

residential ceilings.

SPECS/FEATURES: sound control units add height and interest to ceilings and offers wide-ranging color and pattern variations. Standard colors are white, green and blue, but facing material may, upon order, be dyed any color or be imprinted with custom designs. Sound absorbtion efficiency is 78% at 125 cps, 68% at 500 cps and 81% at 4000 cps. Its flame-spread rating is zero. Units are light and easy to install. They are supported by a light grid system of formed metal sections suspended from overhead by wires or straps to

PRODUCTS, EQUIPMENT, MATERIALS

provide an acoustical ceiling of any height desired. Series also includes flat panels for borders, for areas around columns and beams, for cutouts and similar uses. 200' sq. of the panels stack into a carton weighing only 25 lbs.

AIA FILE NO. 17-A





OUTDOOR RUBBER MAT FOR PLAYGROUND SAFETY

MFR'S DESCRIPTION: butyl rubber mat to prevent serious injuries resulting from falls.

USES: recreational

SPECS/FEATURES: mat provides enough resiliency to absorb the impact of a falling body without permitting transmission of the impact to the underlying hard surface on which mat is set. Manufactured in 2 sq. ft. interlocking components, mat can be assembled in almost any dimension required. Only border and corner blocks are permanently secured to ground or concrete.

AIA FILE NO. 38-J

MFR: MITCHELL RUBBER PRODUCTS,

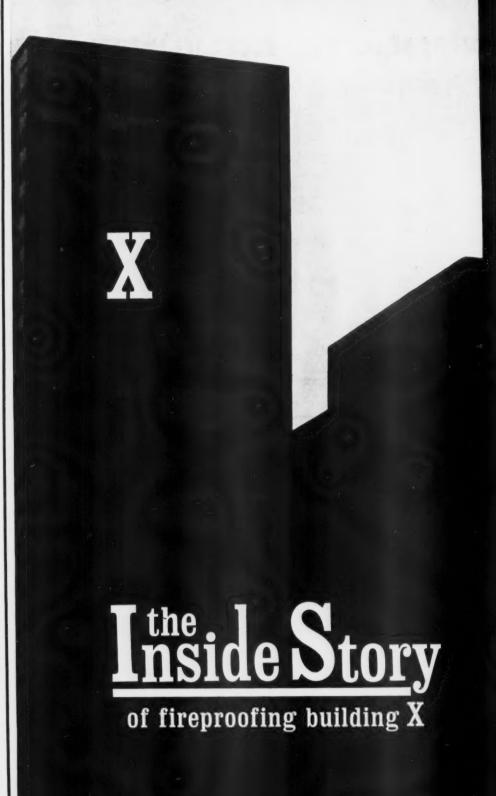
Circle 205 for further information



CLIP-FASTENED PLANKS FOR QUICK INSTALLING

MFR'S DESCRIPTION: clip-fastened planks for quick installation of interior walls.

USES: residential and commercial SPECS/FEATURES: system comes in



The principal characters shall remain anonymous because we don't want to get anyone in trouble...especially ourselves

On a 20-plus story building in the city of X, the architect had specified either Type B spray-on fireproofing, or Zonolite Mono-Kote for building X.

The general contractor suggested to the plastering contractor that he use the Type B spray-on fireproofing. So the plastering contractor, eager to oblige, ordered a supply of Type B, and his men dutifully began to spray it on.

Now, be it understood that Type B is a respectable product, manufactured by one of the giants in the field, scientifically tested and all that. You read all the time about how good it is.

Except that the nozzle men spraying the stuff on didn't think so. It didn't stick to the lower edge of the beam flanges. It was hard to build up even to \%" on the first coat. And there was so much rebound that the nozzle men were getting coated as well as the beams.

When the nozzle men threatened to quit, the plastering contractor decided to try Mono-Kote, though the general contractor tried to dissuade him (verbally; no firearms).

The nozzle men found that on the first pass, they could apply Mono-Kote at least $\frac{1}{2}$ " thick to the beams, and a full $\frac{1}{8}$ " thick to the contour floor.

Within minutes, Mono-Kote was so firmly set that the nozzle men could come back for the second (and final) pass to build the coat to the desired thickness.

The story has all sorts of happy endings. The plastering contractor was happy because he did a good job fast. The general contractor was delighted because the work waiting for the fireproofers to finish was able to begin sooner than he had planned. Even the nozzle men were happy . . . they stayed clean, not coated, working with Mono-Kote.

In many advertisements they are willing to give you the name on request if you write in. Not us. Not even if you say "please." No names mean no trouble.

Story's over; now for a few more pertinent facts. Aside from the speed and excellent application characteristics of Mono-Kote, you use less material; 1" for a three hour fire rating on beams, 1\"/4" for a five hour rating.

On your next job, specify what you will or Zonolite Mono-Kote. We'll be happy to take on all comers. For complete information about Mono-Kote, write for Bulletin PA-53.

ZONOLITE COMPANY

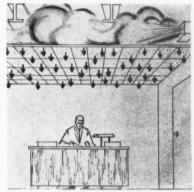
135 SOUTH LASALLE ST., CHICAGO 3, ILLINOIS

PRODUCTS, EQUIPMENT, MATERIALS

4'x7' and 4'x8' panels and 16"x7' and 16"x8' planks. Application is made over solid backing, studs, or furring. Clips and 1" lath nails are included with system. Fitting into the tongue-and-groove edge of planks and panel, clips are nailed to backing and concealed behind paneling. Matching metal mouldings are also available. AIA FILE NO. 19-E

MFR: MASONITE CORP.

Circle 206 for further information



A/C DIFFUSION SYSTEM USES CEILING TILES

MFR'S DESCRIPTION: air-diffusion system, improving air-conditioning and said to reduce installation costs.

USES: commercial, institutional and industrial air conditioning

SPECS/FEATURES: system employs a ventilating acoustical ceiling which allows conditioned air into the room at equal pressure and velocity through perforation in the ceiling material. Air descends slowly on the room in a continuous, uniform "blanket." System eliminates conventional diffusers on ceiling or upper walls and reduces a substantial amount of ductwork. Only a single stub duct is, in most cases, required to deliver the air to plenum space above the ceiling. Conditioned air disperses throughout the plenum, builds up a slight pressure, and is pushed down into the room through the ceiling perforation. Ventilating perforations in ceiling cannot be distinguished when installed.

AIA FILE NO. 17-A/30-F-2 MFR: ARMSTRONG CORK CO. Circle 207 for further infomation

TWO-PART QUICK-DYING LIQUID WOOD FINISH

MFR'S DESCRIPTION: a new two-component liquid floor finish, combining base varnish and a chemical catalyst hardener.

USES: floor finishing

← Circle 121 for further information

how to Watch without being Seen

Rose-Mary Home for Crippled Children, Cleveland, O.



From the corridor, it's a window in the door . .



From the Therapy room, it's a mirror!



Mirropane* the "see-thru" mirror, has many uses... in hospitals, schools, banks, stores, homes... anywhere you want to observe—in person or with a camera—without being seen. When Mirropane is made with regular plate glass, a light intensity differential of about 7 to 1 is required. For best performance, Mirropane made with

Parallel-O-Grey* polished plate glass is recommended. This reduces the light intensity differential to about 3 to 1.

For complete information on "see-thru" mirrors, call your L·O·F distributor or dealer (listed under "Glass" in the Yellow Pages), or write L·O·F, 8111 Libbey·Owens Ford Building, Toledo 1, Ohio.

MIRROPANE

the "see-thru" mirror LIBBEY-OWENS-FORD



PRODUCTS, EQUIPMENT, MATERIALS

SPECS/FEATURES: finish contains amino type resin, aromatic hydrocarbons, and alcohols which, in chemical combination, penetrate and brace the wood fibers. Two ingredients can be mixed in advance since varnish has a "pot life" of at least six months. Finish is said to bring out natural grain and color of wood and can be used over a variety of finishes including shellac, oil varnishes, vinvl and lacquer sealer. It is unaffected by ultraviolet light and does not darken or yellow with age, manufacturer says. Product can also be used to finish wall paneling, trim, woodwork, cabinets, and other wood surfaces.

AIA FILE NO. 25-B-17
MFR: WILLIAM ZINSSER & CO., INC.
Gircle 208 for further information



CHERRY WOODGRAIN HARDBOARD FINISH

MFR'S DESCRIPTION: new hardboard finish.

USES: residential and commercial SPECS/FEATURES: resembling fruitwood, brown-toned paneling is available in 16"x7' and 8' sections for application with concealed clips, and in 4'x7' and 8' sizes for application with color-matched hardboard nails. Thickness is \(^1\)4". New panels are protected by a factory-applied finish which requires no waxing and can be cleaned with a damp sponge. ALA FILE NO. 23-L

MFR: THE CELOTEX CORP.

Circle 209 for further information

GYM FLOOR FINISH PERMITS HARD WEAR

MFR'S DESCRIPTION: a new finish for natural wood floors providing high degree of protection and ease of maintenance.

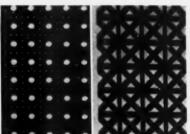
USES: wood flooring in gymnasiums,

schools, church buildings, auditoriums, dance floors and other public buildings

la

SPECS/FEATURES: finish's penetrating action seals off wood floors from moisture and dirt. Ensures a tough and long lasting surface which helps minimize skidding and resists abrasion. Product is fast drying and simple to apply.

AIA FILE NO. 25-B-17
MFR: MARTIN-SENOUR CO.
Gircle 210 for further information



PERFORATED HARDBOARD IN TWO DESIGN SERIES

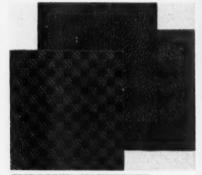
MFR'S DESCRIPTION: hardboard perforated in two different styles for varied design uses.

USES: decorative

SPECS/FEATURES: ½" hardboards lend themselves to such uses as illuminated walls, room dividers, stair enclosures, folding screens and indirect lighting effects. One design, *Grecianboard*, consists of a series of ½" squares within which are four open triangles achieving a criss-cross effect. The other design, called *Caneboard* is a ½" round perforation surrounded by a ½" square of approximately ½" round perforations. AIA FILE NO. 19-E-3

MFR: HARDBOARD FABRICATORS CORP.

Circle 211 for further information



EMBOSSED HARDBOARD IN THREE DESIGNS

MFR'S DESCRIPTION: hardboard series in three design motifs.

USES: decorative

SPECS/FEATURES: available in 1/8" and

"4" thicknesses, designs are a "swirl," checked and leather-textured. All of the hardboards can be finished with lacquer or paint.

AIA FILE NO. 19-E-3

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MFR: HARDBOARD FABRICATORS CORP.

Circle 212 for further information



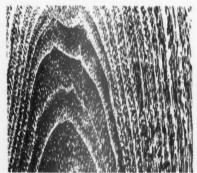
ALL-REDWOOD RE-SAWN PLYWOOD

MFR'S DESCRIPTION: all-redwood plywood with a rough-textured, re-sawn surface.

USES: exterior siding or interior paneling

specs/features: available in 3/8", 1/2", and 5/8" thicknesses, widths of 16", 32" and 48" and lengths of 8', 9' and 10'. Product is said to have resistance to decay and insect attack and can be painted, stained or finished with a clear, natural finish. Aproximate retail price is expected to be about 23¢ a sq. ft. Both sides are treated with a clear water repellent sealer that protects against absorption of moisture and risk of staining.

AIA FILE NO. 19-D MFR: SIMPSON TIMBER CO. Circle 213 for further information



ANODIZED "WOOD" VENEERS ON ALUMINUM FOIL

MFR'S DESCRIPTION: pressure-sensitive backed aluminum foil anodized in multiple colors, reproducing wood veneers.

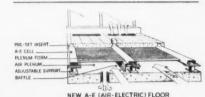
USES: residential, commercial and industrial

SPECS/FEATURES: colors and grains of teaks, mahoganies and other woods are etched into anodized, aluminum foil. Extremely faithful reproduction of wood is claimed for this method. AIA FILE NO. 15-M

MFR: ANODYNE, INC.

Circle 214 for further information

HVAC



HVAC/ELECTRICITY

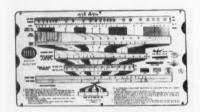
IN FLOORING SYSTEM

MFR'S DESCRIPTION: flooring system providing for all conditioned air, and the cells for power, telephone and other wiring.

USES: residential, commercial and industrial.

SPECS/FEATURES: new system for underfloor distribution of conditioned air and electrical services may be used with any structural system in new construction. System consists of a floor supported by the main structural slab. This floor rests on adjustable steel supports creating an air space or plenum for conditioned air to be carried to floor and ceiling air diffusers. The plenum can be varied in height, is virtually unobstructed, and can be conveniently subdivided with baffles to provide zoning of air. Within the floor, a network of cells at a predetermined spacing carries wires for various electrical circuits. Pre-set inserts are optional for connection to standard service floor

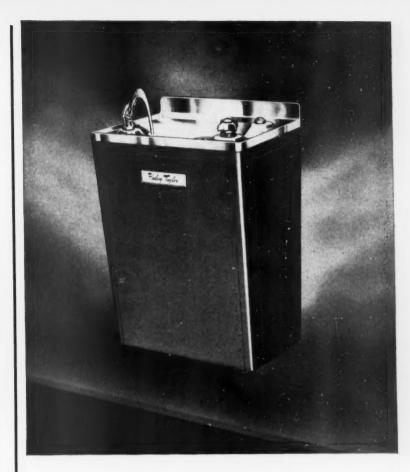
AIA FILE NO. 17-A/30-D/31C MFR: GRANCO STEEL PRODUCTS CO. Circle 215 for further information



HVAC OUTLET SELECTOR & AIR FLOW CALCULATOR

MFR'S DESCRIPTION: calculator and slide rule enabling HVAC system designers to determine quickly and accurately outlet, size and air flow requirements.

USES: designing HVAC systems SPECS/FEATURES: slide rule is 6"x11" and said to be easy to use and accurate. One side is an air flow calculator and the other an outlet selector. Calculator determines the air flow rate for any diffuser or grille from velocity measurements in the



This is the cooler that pioneered a trend

Just a little over a year ago no one ever saw a cooler like this. We call it the Wall-Mount, truly a Halsey Taylor first.

It mounts on the wall..no exposed fittings, no space behind cabinet to catch dirt or grime! Off the floor..room underneath for easy cleaning! The answer to maintenance-free installation and, like all Halsey Taylor fixtures, gives years of trouble-proof service.

The Halsey W. Taylor Co., Warren, Ohio



The Wall-Tite, big brother to the Wall-Mount. Fits tight to the wall.

Habey Taylor.

Write for latest catalog, or see Sweet's or the Yellow Pages

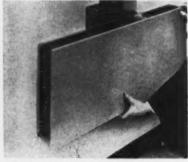
THIS MARK OF LEADERSHIP IDENTIFIES THE MOST COMPLETE LINE OF MODERN DRINKING FIXTURES

Circle 123 for further information

PRODUCTS, EQUIPMENT, MATERIALS

field. It can be used for all anemometers and their factors. Outlet Selector on slide rule provides a new, simplified way to determine outlet and size based on available space and noise criteria. It also provides complete throw, drop and performance of outlets for heating, cooling and ventilating. Sells for \$2.50 and is furnished complete with a 24-page Instruction Booklet. The booklet also provides background and theory on which scales on the rule were based. ALA FILE NO. 30-A

MFR: TITUS MANUFACTURING CO. Circle 216 for further information



ZONAL AIR CONDITIONING FOR HIGH-RISE PROJECTS

MFR'S DESCRIPTION: air conditioning units, either separate or combined with heating systems, provide individually controlled temperature. USES: HVAC

specs/features: preliminary engineering tests indicate cooling capacities ranging from 8,000 to 14,500 BTU/hr. May be integrated with any type of heating system. Adjustable baffle front provides alternate air direction flows. Water disposal system removes condensate by creating a miniature spout of water which is blown onto the condenser coil as fine mist. Generous plenum chamber is said to provide quiet operation. There is also an advanced design blower and an acoustically insulated interior baffle.

AIA FILE NO. 30-F-2
MFR: GENERAL ELECTRIC CO.
Circle 217 for further information

ALUMINUM LINEAR AIR DIFFUSERS

MFR'S DESCRIPTION: continuous-line diffusers permit raised and recessed louver designs.

USES: HVAC

SPECS/FEATURES: diffuser's louvers have been recessed at regular inter-

Circle 124 for further information ->



AIR DISTRIBUTION CONTROL Corrugated galvanized steel serves as form for finish floor slab and forms the top of an unobstructed air plenum. Baffles are used to zone air to desired areas. Perimeter discharge opening can be continuous or spaced as desired. A-E FLOOR COMPLETE Sill can be located at any height-important in curtain wall constructions. Speedy placement of air terminals, air grilles, and standard electrical outlets completes your A-E Floor System. For additional information and details, write for A-E Floor catalog No. AE-601 (A.I.A. File No. 30). GRANCO STEEL PRODUCTS CO., 6506 N. Broadway, St. Louis 15, Mo. A Subsidiary of Granite City Steel Company. A·E FLOOR A-E FLOOR • TUFCOR® • CORRUFORM® • COFAR® • E/R COFAR® • ROOF DECK • UTILITY DECK • GRANCO VIN-COR•S-I-P BRIDGE FORMS® • PAVEMENT JOINTS • FREE FLOW SUBDRAIN

PRODUCTS, EQUIPMENT, MATERIALS

vals with the intervals varied as desired. Face of raised sections on each louver are in brushed satin aluminum finish and present a contrast to the anodized black finish. There are two basic types: one with 1/20"x3/4" louvers spaced on 1/2" centers—the other with 1/20"x3/4" louvers spaced on 1/4" centers. Both types are available in a variety of patterns, including designs which are staggered, inline, or arranged to suit.

AIA FILE NO. 30-J

MFR: TITUS MANUFACTURING CO. Circle 218 for further information

SPECIAL HARDWARE



18 GA. STEEL ANCHOR FOR WOOD CONSTRUCTION

MFR'S DESCRIPTION: a single piece steel anchor designed to provide high holding power as a roof truss or conventional rafter tie-down, or as a floor joist hanger.

USES: timber construction

SPECS/FEATURES: stirrup design requires fewer nails to create a secure bond with a bearing wall, beam or header. Extra strength requirements can be met by increasing grade of nail used. Flat surface does not cause a bulge, nor does it interfere with ceiling, wall or floor finishing. Manufactured of 18 ga. galvanized sheet steel, and available in seat widths of 15%", 314" and 35%".

AIA FILE NO. 27-A

MFR: DURATILE OF OHIO, INC.

Gircle 219 for further information

.032 GAUGE V-BEAM SHEET FOR LONGER SPANS

MFR'S DESCRIPTION: .032 embossed V-beam sheet with or without baked enamel finish.

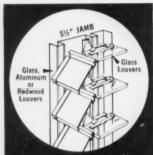
USES: roofing and siding

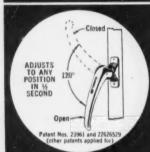
SPECS/FEATURES: new .032 embossed V-beam sheet features lighter weight with deep configuration for water run-off. Deeper contour is said to enable .032 V-beam to span further between structural supports. In ad-

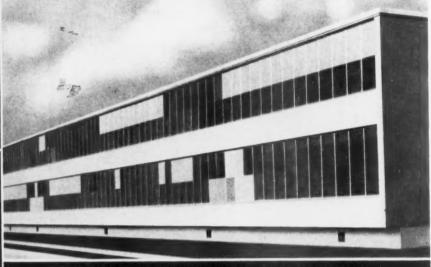
← Gircle 124 for further information

CLEARVIEW INTRODUCES A REVOLUTIONARY

12-111-ONE DUAL LOUVER WINDOW AND WINDOW-WALL







INTERIOR AND EXTERIOR LOUVERS ADJUST SEPARATELY! Dual lower windows 62" and taller have split operation of both interior and exterior lowers, permitting separate adjustment of top and bottom section of each window. (Illustrated above

FOR SCHOOLS, HOSPITALS, OFFICE BUILDINGS, HOTELS, MOTELS, INDUSTRIAL BUILDINGS, APARTMENTS AND HOMES

- Clearviews reduce inside temperature up to 25° without air conditioning Saving on air conditioning costs up to 50%.
- · Glass Protector eliminates painting, and maintenance costs.
- Aluminum window and window-wall eliminates overhanging roofs, shades and blinds.
- Easy to clean from inside privacy visor Stainless Steel Jamb Weather Stripping.
- Acoustical all-weather window wall 100% ventilation and sun control.
- Illumination, prowler, draft, light, glare, and sun control visor.
- Window guard and knockout emergency fire escape exit.
- Blackout, concussion and rock resistant louvers. (No rigid glass)
- Adjustable storm shutter rain, wind, dust and vandalism proof.
- Finger-tip control for visual education in ventilated position.
- Automatic air circulation. (Cool air in at bottom warm stale air out at top)
- ALL-WEATHER LOUVER WINDOWS PAY FOR THEIR COST BY REDUCING AIR CONDITIONING AND OPERATION COST, WHERE LARGE WINDOWS ARE EXPOSED TO THE SUN.

For complete details and specifications, prices and literature, call or write your Clearview dealer or our nearest office.

MANUFACTURED BY

2200 N. Parmelee NEvada 6-2428

Riverside 1-6071

2625 Elm St. 3318 S.W. Second Ave. JAckson 2-8526

COMPTON, CALIF. DALLAS, TEXAS FT. LAUDERDALE, FLA. SAN MATEO, CALIF. 3987 Pacific Blvd. Fireside 5-8231

MIAMI, FLORIDA 900-902 N.W. 27th Ave. NEwton 4-2605

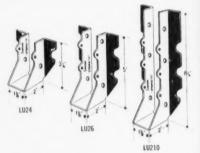
ST. PETERSBURG, FLA. 40USTON, TEXAS 3027 Ninth Street N. 2308 Texas Ave. 7-1146 CApitol 8-4508 Alpine 2-4808 2308 St. 11th Ave. 2108 Scond St., S.W. 1045 High St. 2078 So. Bellevue 2-1008 Scond St., S.W. 1045 High St. 2078 So. Bellevue 3-1537 Whitehold 6-4411

Circle 125 for further information

PRODUCTS. EQUIPMENT. MATERIALS

dition, the increased rib depth results in a more definite shadow line (for siding) and increased watercarrying capacity (for roofing.) AIA FILE NO. 15-J

MFR: ALUMINUM CO. OF AMERICA Circle 220 for further information



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JOIST HANGER FOR 2" FRAMING

MFR'S DESCRIPTION: a new joist hanger design for safe load values for 2" framing.

USES: timber framing

SPECS/FEATURES: die formed of 18 ga., galvanized steel with a full 2" bearing seat, available in 3 sizes for all 2" connections, from 2"x4" up to and including 2"x14".

AIA FILE NO. 27-A MFR: SIMPSON TIMBER CO.

Circle 221 for further information

DECORATIVE HINGED BRONZE LEADER BANDS

MFR'S DESCRIPTION: luxury, downspout bronze hinge bands.

USES: exterior

SPECS/FEATURES: a line of decorative hinged bronze leader bands with standard designs such as diamond, initial and religious motifs. Stock sizes are 3" and 4" round and 2"x3", 3"x4" and 4"x5" square bands. Special sizes and designs are available on individual order, manufacturer says. AIA FILE NO. 27-C

MFR: DAVID LEVOW, INC. Circle 222 for further information

INTERNAL SNAP-LOCK FOR SLIDING DOORS

MFR'S DESCRIPTION: a new type of lock for screen sliding doors.

USES: securing doors.

SPECS/FEATURES: lock permits convenient spring latching of door to prevent opening by vibration or wind currents. Snap-lock also has a simple locking feature.

AIA FILE NO. 27-B MFR: UNIVERSAL MOLDING CO.

Circle 223 for further information

PRODUCTS, EQUIPMENT, MATERIALS

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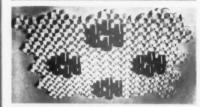
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CEILING DESIGN WITH CIRCULAR PATTERN

MFR'S DESCRIPTION: ceiling of interlocking metal rings.

USES: commercial ceilings

SPECS/FEATURES: this circlet pattern with six gold rings, clustered against a white background are one of many patterns available in this new hung ceiling system. Ceiling sections are linked together in a concealed manner to form a rigid louver panel.

AIA FILE NO. 17-A

MFR: GENERAL CEILINGS, INC. Circle 224 for further information

NEW INSTALLING SECTIONS FOR 1/2" GYPSUM WALLBOARD

MFR'S DESCRIPTION: half-corner runners designed for use in confined areas such as closets and small hall-ways.

USES: installing gypsum wallboard SPECS/FEATURES: designed for commercial as well as residential construction, runners are cold rolled electra-galvanized 26 ga. strip steel members shaped to hold 1/2" wallboard securely by providing narrow, beveled metal coves. Available in 7'-11" and 10' lengths, system offers "floating" corners, said to help in eliminating cracking and nail popping. Also eliminated are double studs at corners, conventional backing lumber formerly nailed to the top plate and metal strapping across frame openings for plumbing and ductwork. In closets, half-corner runners eliminate need for one 2"x4" stud per corner. Runners are joined by corner connectors and straightrun splices, thus eliminating angle cutting.

AIA FILE NO. 27-C

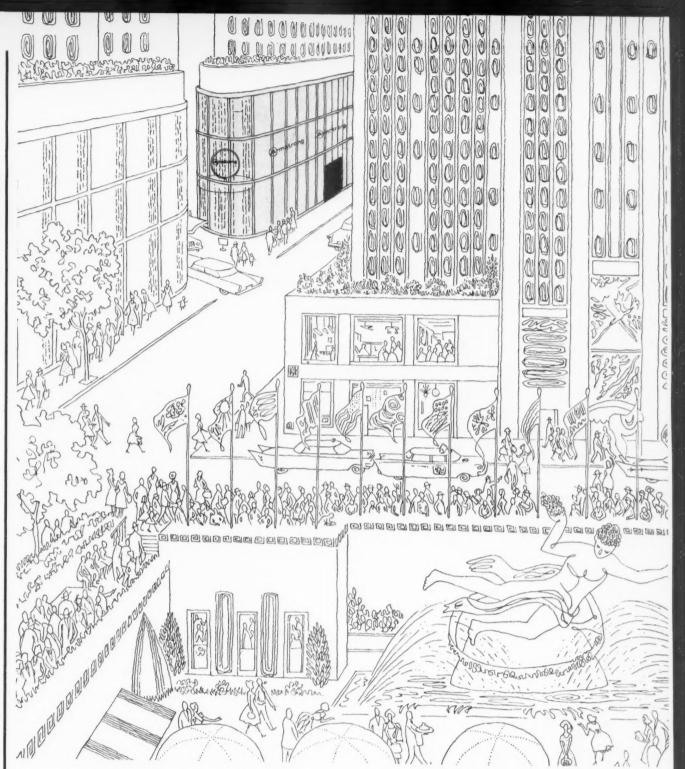
MFR: BESTWALL GYPSUM CO. Circle 225 for further information

FIR PLYWOOD PANELS IN GIANT SIZES

MFR'S DESCRIPTION: panels of fir plywood up to two miles long (if required) and ten feet wide.

USES: general construction

SPECS/FEATURES: six major manufac-



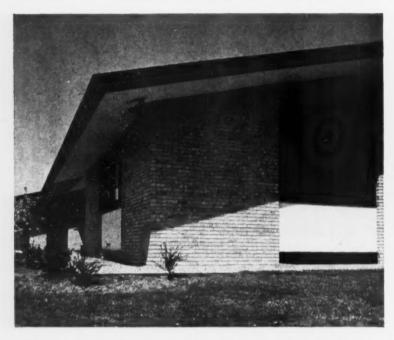
THE NEW ARMSTRONG PRODUCT CENTER IS IN THE HEART OF NEW YORK (60

West 49th Street, Rockefeller Center) Armstrong Architect-Builder Consultants and acoustical experts are on hand to give you technical information and suggest new design and functional possibilities for the newest developments in acoustical ceilings, resilient floors, and vinyl wall coverings. Our color consultants and decorators are also available to give you detailed information on interior planning. Open 9-5, Mon.-Fri. For an appointment, call JU 2-3700.

rmstrong FLOORS and CEILINGS

PRODUCTS, EQUIPMENT, MATERIALS

Brick that stay beautiful



Silaneal reduces staining, efflorescence

Picture this lovely home a decade from now. Will it still be beautiful, its brick unmarred by water and weather? The answer is yes. And the reason is Silaneal[®], the plant-applied sodium siliconate treatment that helps brick repel water . . . prevents unsightly discoloration due to rain, dirt and efflorescence, protection especially important where lighter shades of brick are used.

How Silaneal protects beauty. With high suction rate brick, discoloration is caused chiefly by water that carries soot, soil and other dirt into the brick ... actually embeds the dirt in brick surfaces. Once inside water also leaches salts out of the brick forming efflorescence on the surface. Silaneal treatment makes brick repel water while leaving it free to breathe. Dirt stays on the brick surface where it's rain-washed away. And where water can't get in, efflorescence is minimized . . . brick stays kiln clean.

Walls are stronger, too. Because Silaneal reduces the suction rate of brick, it also keeps brick from sucking too much water out of the mortar during lay-up. This means mortar cures slowly. Hairline cracks at the interface of mortar and brick are eliminated. A stronger bond results; moisture penetration through the finished wall is minimized.

For more information about Silaneal and how it will help you build better brick buildings write to Dow Corning Corporation, Department 1123, Midland, Michigan.

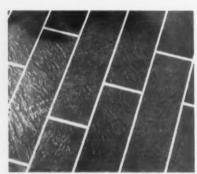


Dow Corning

Circle 146 for further information

turers of fir plywood have announced availability of panels 8' or more wide and "any reasonable length" in most instances. Panels wider than 5' are scarfed along the grain.

AIA FILE NO. 19-E-6
ASSN: DOUGLAS FIR PLYWOOD ASSN.
Gircle 226 for further information



VINYL/ASBESTOS FLOORING LOOKS LIKE SLATE

MFR'S DESCRIPTION: a new vinyl asbestos flooring tile with the appearance and texture of quarried slate stone.

USES: residential and commercial SPECS/FEATURES: flooring tile available in five colors; black, green, terra cotta, gray and purple. Tile is manufactured in $\frac{1}{8}$ " thickness and in 12" squares and may be cut to sizes desired.

AIA FILE NO. 23-G MFR: B. F. GOODRICH CO. Circle 227 for further information



NEW STRIP FLOORING OF PRESSED WOOD PARTICLES

MFR'S DESCRIPTION: strip flooring made from wood particles, blended with synthetic binders and compressed.

USES: residential, commercial, institutional and industrial

SPECS/FEATURES: flooring available in widths of $4\frac{1}{2}$ ", 6" and 9". Lengths are 36", 40" and 60" with a standard $\frac{3}{6}$ " thickness. Installation is eased with tongue-and-groove siding.

AIA FILE NO. 23-G

MFR: PACQUA DIV., FORREST INDUSTRIES, INC.

Circle 228 for further information

SEALERS

WOOD SEALER/FINISHER IN ONE APPLICATION

MFR'S DESCRIPTION: new formula acts as wood sealer when applied, then wiped with cloth; imparts a durable finish.

USES: wood sealing and finishing SPECS/FEATURES: finisher-sealer is recommended for priming soft- or hardwoods before painting in that its penetration into the wood pores smoothes the surface and eliminates wild grain "show-through." As a floor sealer-finisher, it hardens fibers for greater wear and produces a low-luster effect.

AIA FILE NO. 25-B-17
MFR: U. S. PLYWOOD CORP.
Gircle 229 for further information

WEATHERPROOF SEALANT FOR NARROW JOINTS

MFR'S DESCRIPTION: sealant is a rubber base aluminum pigmented paste and moisture resistant.

USES: sealing metal, ceramic, wood or masonry joints.

specs/features: sealant is said not to harden, and is expected to retain its adhesive qualities for 20 years or more. Sealant is available in standard caulking cartridges, fitting conventional caulking gun applicators. Each cartridge of aluminum-colored paste contains approximately 1/10th of a gallon.

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AIA FILE NO. 17-J
MFR: ALUMINUM CO. OF AMERICA
Circle 230 for further information

THINLINE EPOXY MORTAR FOR BONDING MASONRY

MFR'S DESCRIPTION: two-part epoxy mortar designed for bonding mortar. USES: adhesion

SPECS/FEATURES: two-part epoxy is mixed in a plastic bag on the jobsite. A %16" hole is then cut in the bag to allow thin strips of mortar to be placed on products being bonded. Colors available include red, green, blue, black, yellow, brown, tan and tangerine. Manufacturer says 2½ lbs. of epoxy mortar will lay 25 large concrete blocks using the maximum length both on horizontal and vertical face of block.

AIA FILE NO. 24-A
MFR: MULTI-MORTAR DIV., DELORME

Circle 231 for further information

RUBBER BASE SEALERS FOR CURTAIN WALLS

MFR'S DESCRIPTION: $Type\ H$ (hollow) and $Type\ S$ (solid) twin bead sealers

are designated for use where a soft compressible sealer is required.

USES: between curtain wall panels, and between glass and metal frame. SPECS/FEATURES: sealers can be used alone if joint design provides positive compression on sealer; or used in conjunction with liquid polysulfide curtain-wall sealers as a supplement or spacer. Sealers permit sealing of uneven or tapered joints and 90° bending without cutting or fitting operations. Sealers act and perform as a rubbery gasket when pressed into a seam and tightened between the sealing surfaces. Both sealers are said to have good moisture, salt spray and weathering resistance.

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News

AIA FILE NO. 17-J MFR: MINNESOTA MINING & MANU-FACTURING CO.

Circle 232 for further information



"FOOLPROOF" EPOXY IN TWO-PART SYSTEM

MFR'S DESCRIPTION: adhesive is a two-component system, mixed in equal parts by volume instead of odd ratios by weight.

USES: adhesive

SPECS/FEATURES: one part is colored cherry red, the other clear amber. User mixes the two until color striations disappear and a uniform tint is achieved. At that point, adhesive is ready for use. Epoxy is a 100%-reactive adhesive tested for fully cured metal-to-metal bonds at room temperature, yielding up to 3,500 psi. Since the mixed adhesive is smoothly free-flowing, it may be applied with spatula, trowel, paint roller, knife, brush or standard twopart epoxy spray equipment. Red color provides visual check on uniformity of coverage.

AIA FILE NO. 24-A

MFR: RUBBER & ASBESTOS CORP. Circle 233 for further information

INTERIOR ALKYD WOOD SEALER

MFR's DESCRIPTION: sealer for new or unfinished wood surfaces.

USES: residential, commercial and in-

SPECS/FEATURES: product is recommended as a sealer and finish coat for new or resanded floors and paneling. Sealer dries in one hour and can be sanded in less than two hours. One gallon covers up to 500 sq. ft.

NEW! PHANTOM BED

SPACE SAVING DESIGN IDEA!

A Concealed Bed That Converts **Beautifully Into A Paneled Wall!**





Phantom Bed is the first really new development in interior design and construction in a quarter century! It is the only concealed bed that can utilize box springs for sheer comfort! Requires only 24 inches of wall space depth - 56 inches of wall space width. Installs on concrete, hardwood — any type flooring. Absolutely safe - simple to operate. The secret is in Phantom Bed's patented torsion bar suspension.

(For free, illustrated color booklet, "Space Saving Magic," write Phantom Bed Division, 1312 Central Ave., Hot Springs, Arkansas)





PATENT APPLIED FOR

DIVISION/BHQ CORPORATION . HOT SPRINGS, ARKANSAS

boon for BUILDERS!



In new construction or remodeling, a den converts to an extra bedroom . . . a single room becomes a guest apartment — at a touch! The most merchandiseable feature ever built into

award winner for ARCHITECTS!



Be among the first to suggest and specify this fabulous feature. Phantom Bed is the "conversation piece" built-in that adapts to both your custom-built and merchant-built designs!

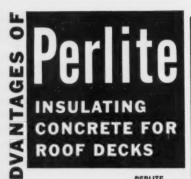
must for MOTEL-HOTEL OWNERS!

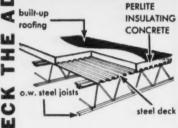


Older motels hotels and apartments become competitive in both style and space with Phantom Bed installations. With Phantom Bed, new motels can offer the convenience, luxury and space of a suite—for the price of a single unit!

SEE THE PHANTOM BED AT THE NAHB CONVENTION-DECEMBER 3-7 CHICAGO-DISPLAY SPACE #1548

MCCORMICK PLACE





Here are only a few of the reasons why you should specify this modern, practical construction material on your next

Perlite Insulating Concrete

is lightweight, yet exceedingly strong where combined wide spans and high load carrying capacities are required.

Perlite Insulating Concrete

forms a fire safe permanent insulating roof deck that offers up to 20 times more Thermal insulation than ordinary concrete.

Perlite Insulating Concrete

bonds directly to galvanized metal and eliminates the necessity of a combustible bonding agent used under rigid insulation.

Perlite Insulating Concrete's

low dead load offers savings in structural steel. It may be job or transit mixed and poured monolithically on any kind of surface or pre-cast into panels



For further informa-tion see Perlite Insti-tute Concrete Aggre-gate Catalog A.I.A. File 3-D-3 & 37-B-2 in Sweet's 1961 Architectural File or write for catalog PI-7.

Information and data based upon independent research laboratory tests and ASTM specs.



45 W. 45TH ST., NEW YORK 36, NEW YORK

Circle 129 for further information

PRODUCTS, EQUIPMENT, MATERIALS

Sealer will not discolor natural wood surfaces and provides a base for subsequent finish coats.

AIA FILE NO. 19-E

MFR: GREAT LAKES PAINT & VARNISH

Circle 234 for further information

HARDWARE



SWITCH LOCKING COVER FOR METAL WALL PLATES

MFR'S DESCRIPTION: a new switch locking cover attachment fits any metal wall plate.

USES: safety and control of electrical switches

SPECS/FEATURES: device helps eliminate unauthorized persons from tampering with switch. Unit is available in master keying or straight keying systems and can be installed over an existing flush toggle switch. AIA FILE NO. 27-C-2

MFR: HARVEY HUBBELL CO. Circle 235 for further information



CONDUCTIVE LINOLEUM GROUNDING EQUIPMENT KIT

MFR'S DESCRIPTION: kit for grounding conductive linoleum.

USES: grounding conductive linoleum SPECS/FEATURES: kit contains jumper connectors, ground clamps, a grounding test plate and a technical data manual with diagrams and complete installation instructions.

AIA FILE NO. 23-C

MFR: CONGOLEUM-NAIRN INC. Circle 236 for further information

WOOD-GRAIN COVERS FOR DOOR CLOSERS

MFR'S DESCRIPTION: wood grain covers for manufacturer's series of surface-mounted narrow-projection door closers.

USES: decorative

SPECS/FEATURES: door closers are metal with a thin lamination of wood veneer bonded to exterior. Available in six common grains and on special order from a group of 69 exotic and native wood grains.

AIA FILE NO. 27-B

MFR: NORTON DOOR CLOSER CO. Circle 237 for further information

AUTOMATIC DOOR SIGNAL FOR VARIED USES

MFR'S DESCRIPTION: automatic door signal, exit and entrance alarm, and people counter.

USES: commercial and industrial SPECS/FEATURES: operational distance by transistorized unit ranges from 1'-3" to 25'. Unit is stable and sensitive; once installed and set, sensitivity control will not require resetting with changing stray light. Operates on 110-125 volts, 60 cycles. Mirror and chime supplied at no extra costs. Size is 4"x5"x6". Automatically signals movement, approach, and departure.

AIA FILE NO. 31-i-13

MFR: ELECTRIC EYE ENTERPRISES

Circle 238 for further information

MISCELLANY



NAIL-ON STONE PANELS BONDED TO INSULATION BOARD

MFR'S DESCRIPTION: new nail-on panel of precast stone siding.

USES: siding

SPECS/FEATURES: panels, 14"x32", consist of a natural looking, lightweight stone material permanently bonded to a 1/2" thick insulation board. Panels are secured with type

6d nails driven into area between stones. Joints are then mortared with a standard ready-mix cement. Can be applied directly to wood siding or to 2"x4" studs. A choice of either slatecolored gray or a golden-sand shade is available.

AIA FILE NO. 12-B MFR: ALSCO, INC.

Circle 239 for further information



PLASTIC STACK CHAIR FOR VARIED USE

MFR'S DESCRIPTION: plastic "shell" chair designed for stacking.

USES: commercial and institutional SPECS/FEATURES: entire seating portion is of glass fiber construction. Ribbing in the mid-section provides extra strength and proper ventilation. Upholstery available in a choice of 8 different kinds of vinyl and nylon in 6 basic colors.

AIA FILE NO. 28-A

MFR: CLARIN MANUFACTURING CO. Circle 240 for further information

FLUSH-TO-WALL WATER FOUNTAIN

MFR'S DESCRIPTION: flush-to-wall water fountain

USES: commercial

SPECS/FEATURES: units can be located by mounting against wall. Water and waste lines can be attached from either floor or wall behind the water fountain. Units are now available which are said to cost no more than models requiring extensive exposed plumbing fixtures. Since fountain is flush with wall, about 4" of space are saved; also with user at one side, rather than in front, about 12" of additional traffic space is made available. These trapezoid water coolers can be mounted against the wall and either on or off the floor.

AIA FILE NO. 29-H-1 MFR: GENERAL ELECTRIC CO.

Circle 241 for further information

Circle 130 for further information about WESTERN PINE pp 57-60-

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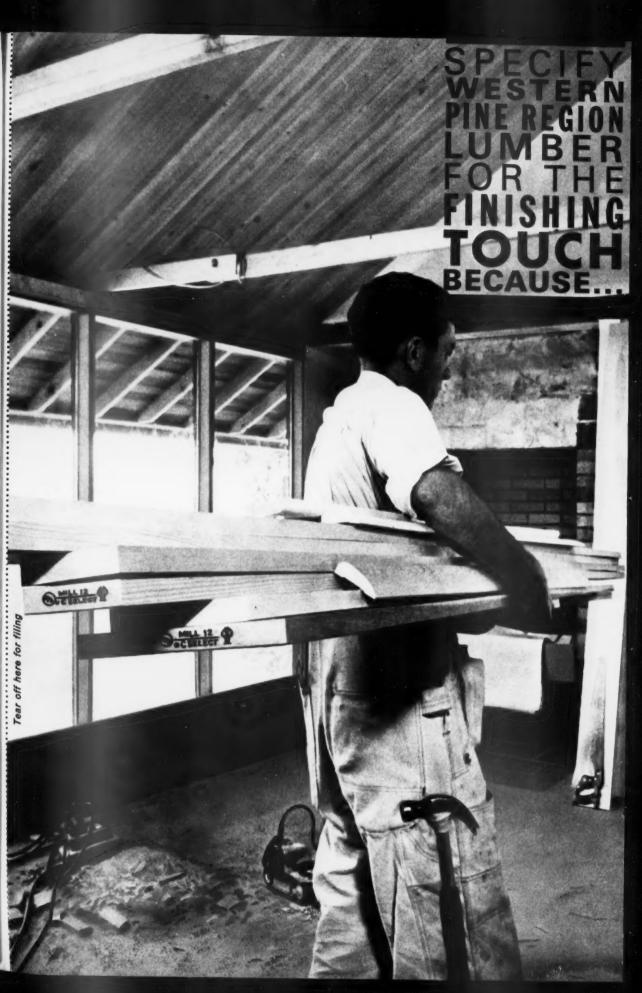
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WESTERN PINE REGION FINISH LUMBER GIVES YOU THESE ADVANTAGES

workability that cuts your costs

Western Pine species are easier to work by hand or machine. Their soft, even texture cuts smoothly, with little sanding needed, and resists splitting or slivering. These low density woods accept nails and screws easily . . . and are seasoned to hold them permanently. Western Pine species are unsurpassed for gluing qualities.

paintability to meet cost and color demands

Smooth, close-grained Western Pine species take any paint or finish easily, require less coats to cover . . . may be treated to match any decorative theme. You have a choice of 10 naturally beautiful woods . . . woods that say *quality* to your prospects.

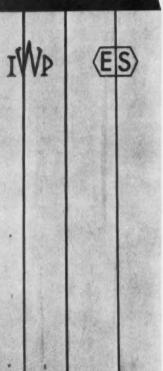
stabilitythat keeps buyers satisfied

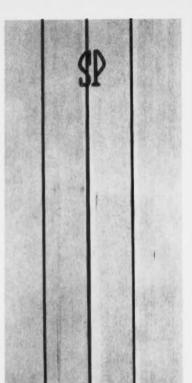
Western Pine species have a low natural rate of shrinkage, and are thoroughly seasoned to assure permanently accurate and tight-fitting joints. Proper seasoning also allows storage without downgrading both at your dealer's and on the job.

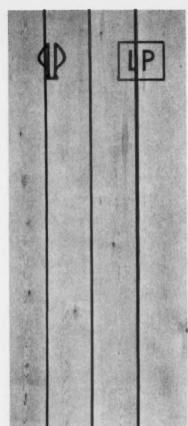
see the facts for your finish needs

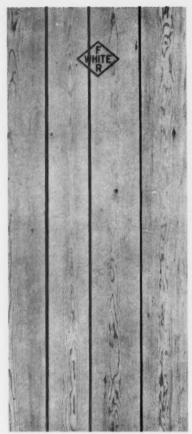
You also earn these benefits when you specify western pine millwork . . . milled to precise specifications after seasoning and western pine mouldings . . . available in over 600 standard patterns and a wide range of dimensions.

QUALITY GRADED LUMBER











CHARACTERIST

IDAHO WHITE PINE & ENGELMANN SPRUCE

Both light-colored, shades ranging from near-white to light straw. Very subdued grain pattern. Soft texture and straight grain produce excellent working qualities. Pine slightly softer than spruce.

SUGAR PINE

Similar in all respects to foregoing species, except grain often has light brown flecks, producing unique and attractive appearance.

PONDEROSA PINE &

Both slightly darker in color than foregoing species, with slightly bolder grain pattern. Working qualities excellent.

WHITE FIR

Very light colored, with greyer cast than pines—termed "oyster-white" shade. Subdued grain pattern.

DOUGLAS FIR &

Darker colored woods, from light orange-red brown. Very distinct grain Both species hard and resistant, suitable for he Larch has attractive was when used in natural fin

GRADES

B & BETTER SELECT ★ ■

Highest grade. Allows only very minor defects (occasional pin knot or tiny seasoning check). Used for highest quality finish work where large pieces of clear lumber are desired.

* "Supreme", grade in Idaho White Pine

B & BTR.

C SELECT *

Slightly lower quality grade. Many pieces have B & Better faces, but lower grade backs prevent inclusion in highest grade. Suitable for high-quality work where entirely clear lumber not required. This grade often combined with B & Better and marketed as "C & Better Select".

* "Choice" grade in Idaho White Pine

MILL 12

D SELECT *

Lowest grade of select type lumber. Allows a few more and larger smooth knots than higher grades. Excellent buy for moderate quality finish work. Ideal for use where minor defects may be cut out or where paint finish is intended.

* "Quality" grade in Idaho White Pine

MILL 12

NO.1& NO.2 COMMON *

Top grade of knotty finish lumber for jobs where these natural growth characteristics are desired. Knots are smooth and tight for good quality work.

Colonial" and "Sterling" grades in Idaho White Pine

MILL 12 2 COM.



WIDTH: 4-ir





TICS

FIR & LARCH

d woods, varying nge-red to russet stinct grain pattern. and abrasion-ble for heavy wear. active waxy sheen natural finish.

RED CEDAR & INCENSE CEDAR

Colors vary widely, from light cream (sapwood) to reddish brown (heartwood). Very attractive in natural finish, with distinct, beautiful grain pattern. Strong natural resistance to decay, ideal for exterior finish uses.

IZES

THICKNESS: Commonly available in 1, 1 1/4, 1 1/2 and 2-inch.

DTH: 4-inch to 12-inch in multiples of 2 inches or random widths.

■ LENGTH: 6-feet and up in multiples of 1-foot and 2-feet.
(D.Fir and Larch allow 3% of 4' and 5' lengths)

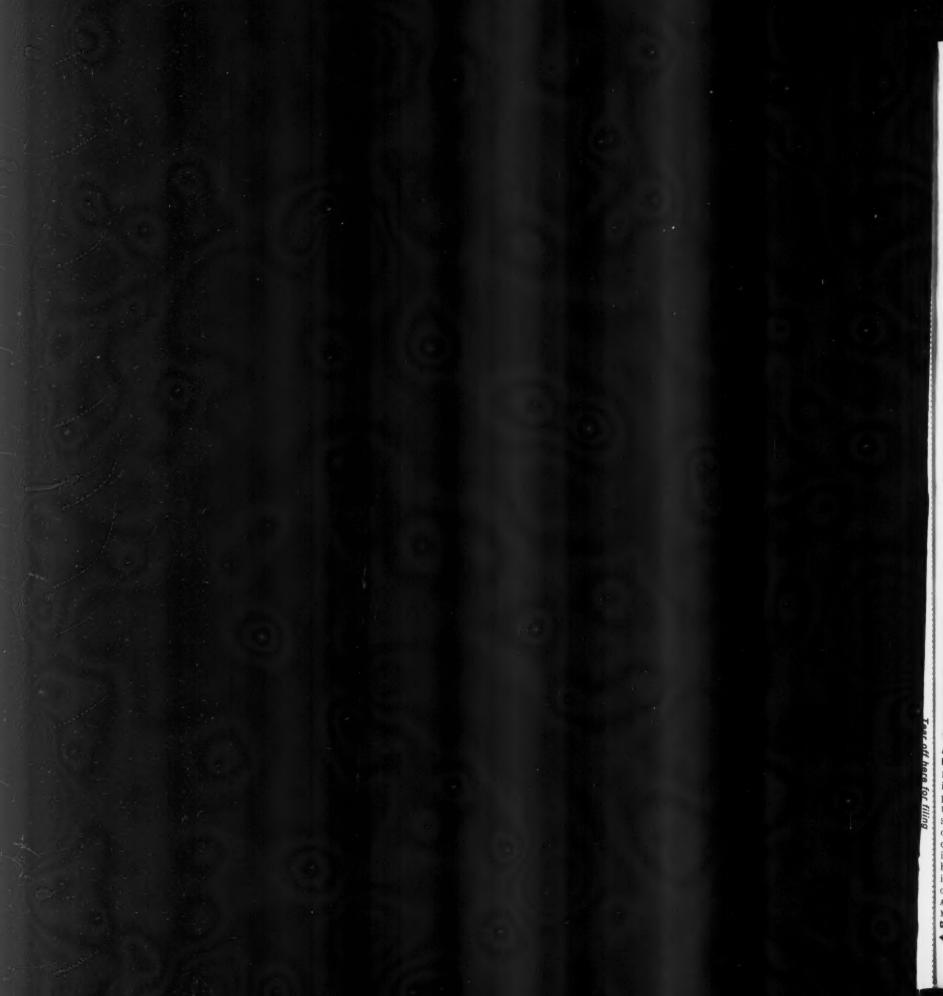


WESTERN PINE ASSOCIATION

YEON BLDG., PORTLAND 4, ORE.

QUALITY GRADED LUMBER
for siding • framing • sheathing &
sheet-board • decking • paneling

Tear off here for filing



PRODUCTS, EQUIPMENT, MATERIALS



FALLOUT SHELTER OF REINFORCED CONCRETE

MFR'S DESCRIPTION: atomic fallout shelter of reinforced concrete 6" thick, in 6' sections.

USES: residential and commercial SPECS/FEATURES: Any number of sections can be used depending on the number of people it is expected to accommodate. An exclusive feature is the emergency exit incorporated in each section to insure escape. The arch design gives a high strength factor to the roof with a seven foot head-room. At floor level it has a minimum 5' width. Complete ventilation by means of a filter equipped ventilator pipe is included in the design. Also included are hangers for bunks.

AIA FILE NO. 4-E-71
MFR; W. E. NELSON STUCCO CO.
Gircle 242 for further information



ACOUSTICAL PARTITIONS FOR SCHOOL USE

MFR'S DESCRIPTION: vertically moving, electrically operated, acoustical partitions.

USES: commercial and institutional SPECS/FEATURES: curtains are made of vinyl and lead, can be lowered quickly to divide an area. When not in use top roller mechanism is housed in a ceiling enclosure requiring 18" of space, regardless of height or length of partition.

AIA FILE NO. 35-H-6 MFR: TORJESEN, INC.

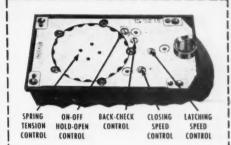
Circle 243 for further information

Circle 130 for further information about WESTERN PINE pp 57-60

MORE 2 YEAR TESTS under severe conditions give further evidence of dependable function of



nos. 27-28 CLOSERS



No other door closer offers so many door control functions . . . each proven by test to withstand abuse.

NO DOOR WHIPPING... after 2 years of heavy usage, 9 hours a day, FARMERS UNION BLDG. of Denver, Colorado says of the No. 27, "We are particularly pleased with the hydraulic back-check eliminating any whipping due to our high winds... positive stop prevents door from swinging over adjacent opening."

sand storms, no problem . . . in an extreme environment for 2 years at the EDISON COMPANY of Lancaster Cal., where strong desert sand storms blow, the "No. 27 is the only closer ever to hold up under these abusive conditions and keep the busy service yard door under control."





Complete literature and details on the no. 27 offset hung and no. 28 center hung closers will be mailed on request.

THE OSCAR C. RIXSON COMPANY 9100 West Belmont Avenue • Franklin Park, Illinois IN CANADA: 43 Racine Road (Rexdale P.O.) Toronto, Ontario

Circle 131 for further information



BACKWATER VALVES

to prevent damage caused by backwater from sewers

Why take chances of having sewage carried into the basement as the result of heavy rains or flood? It can happen without warning to any building not properly protected... and the damage cannot be adequately covered by insurance.

The sensitive valve mechanism in Josam Backwater Valves closes at the slightest backflow... keeps backwater OUT! Cost is so small compared to damage prevented. Be sure your buildings are protected.

Write for literature today.

JOSAM MANUFACTURING CO.

General Offices and Manufacturing Division • Michigan City, Ind.
REPRESENTATIVES IN ALL PRINCIPAL CITIES

West Coast Distributors

765 Folsom Street

JOSAM PACIFIC CO. treet San Francisco 7, Calif.

JOSAM PRODUCTS ARE SOLD THROUGH PLUMBING SUPPLY WHOLESALERS
Manufacturers and Representative in Mexico — HELVEX, S.A., Mexico City

Gircle 132 for further information

FROM RUSSWIN

a new, modern-design liquid door closer that stretches small budgets



Russwin Series 59 Door Closer introduces modern styling to economy door closer design. And it's built with brawn to spare. Full rack and pinion. Turret-type arm. Widest range of adjustments. Meets Fed. Spec. 3001, 3009. Write Russell & Erwin Division, The American Hardware Corp., New Britain, Connecticut.

Circle 133 for further Information

PRODUCTS, EQUIPMENT, MATERIALS



SPECIAL WATER TANK FOR FALLOUT SHELTERS

MFR'S DESCRIPTION: a water tank developed specifically for atomic fallout shelter use.

USES: public or private shelters SPECS/FEATURES: water tank was developed in cooperation with the Office of Civil and Defense Mobilization. The tanks are available in 30, 82 and 120 gal. capacities and are designed to be used within the atomic fallout shelter as recommended by OCDM. Special provisions to avoid contamination of water within the tank, have been made.

AIA FILE NO. 29-D-2/3

MFR: W. L. JACKSON MANUFACTURING

Circle 244 for further information

NEW FINISHES FOR LAMINATED PLASTICS

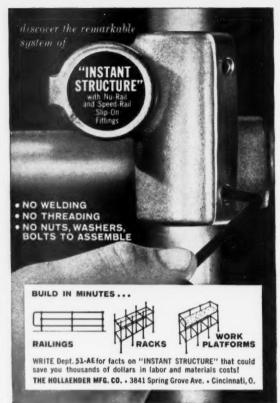
MFR'S DESCRIPTION: two textured finishes, designated *Suede* and *Brushed*, have been added to the company's line of decorative laminated plastics. USES: wall paneling, partitions, doors and other areas

SPECS/FEATURES: Brushed has a single-direction grained feel which is similar to that of fine woods. Surface glare, as with Suede, is kept low, and surface fingermarks are virtually invisible. Suede is a fine-textured finish which greatly reduces glare and reflectivity, while retaining the easy cleaning property of laminated plastics.

AIA FILE NO. 35-C-12

MFR: FORMICA CORP., DIV., OF AMERICAN CYANAMID CO.

Circle 245 for further information



Circle 134 for further information

New for Cooler and Freezer Rooms:

Lightweight, colorful JAMOLITE® Plastic Doors



4" Thickness: JAMO-LITE Cooler and Freezer Doors are both only 4" thick, both flush-fitting.

Lightweight: Weighs only 1/5 as much as steel clad doors.

New Color: JAMOLITE Doors come in gleaming white and 4 colors.

Frostop on Freezer Door prevents ice for mation. Carries Underwriters' Laboratories label on most sizes.

Impervious to moisture and vapor.

Nov

For catalog data on JAMOLITE Freezer and Cooler Doors write today to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON

Circle 135 for further information

Specify the SAFETY of



AUTOMATIC **EMERGENCY LIGHTS**

In sudden blackout when your regular lights fail, BIG BEAM goes on instantly.

For a Safer SCHOOL . STORE • OFFICE • BANK • SHOP • PLANT • RESTAURANT • ANY PUBLIC BUILDING



Big Beam Finest Quality. . . American Made!



No. 2-FA—Automatic fast and trickle charge.

No. 2-ATW-12-hour fast charge time

Choice of lead acid or nickel cadmium battery—dry cell models available.*





*WRITE FOR CATALOG on complete line of emergency lights

U-C-LITE Mfg. Co. 1057 W. Hubbard St. Chicago 22, Illinois Circle 136 for further information

POSITIVE BOND INSURED

Concrete to Concrete to Metal to Wood with

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STA-CRETE **EPOXIES**

Surface-resurface Eco nomical. Easy to apply to a feather edge, No chipping-No rough-Ing - No tamping - No priming necessary. Harder-Many times stronger than concrete. Yet flexible. Withstands tremendous

Never shrinks. Hardens from internal chemical reaction. NOT from evaporation.

See your dealer or write

STA-CRETE, INC. 115 New Montgomery St. San Francisco 5, Calif.

Circle 137 for further information

TEST PATCH

BE CONVINCED

YOU WILL

PRODUCTS. EQUIPMENT. MATERIALS

CEILING FIXTURES FRAMED IN WALNUT

MFR'S DESCRIPTION: lighting ceiling fixture is walnut framed, large sized. USES: overhead illumination

SFECS/FEATURES: four basic molding patterns are available in 3 basic sizes-from approximately 2' sq. to 4' sq. Larger sizes and specially designed shapes may be ordered. Number of lamps per unit can be varied to meet the needs of special applications. In addition to the standard walnut finish, oak, bleached oak, mahogany, maple and cherry finishes may be specified.

AIA FILE NO. 31-F-231 MFR: MORRIS KURTZON, INC. Circle 246 for further information

ALUMINUM V-BEAM AT LOWER WEIGHT/COST

MFR'S DESCRIPTION: a lower priced addition to a line of aluminum V-

USES: roofing and siding for commercial and industrial buildings.

SPECS/FEATURES: new .032 gauge Vbeam is priced 10 to 15% below thicker gauged V-beams in manufacturer's line. According to company, .032 V-beam under a typical 20-lb. roof live load will span almost 12' with no supports. New V-beam has 5\%" pitch for application in multiples of 16" or 48". Each pitch includes a flat area 11/8" wide. Sheet is 45" wide is available in lengths up to 30'. It is offered in 20 colors and two mechanically embossed finishes.

AIA FILE NO. 17-A MFR: REYNOLDS METALS CO. Circle 247 for further information

TIN MICRO-COATED PLUMBING FITTINGS

MFR'S DESCRIPTION: cast bronze and wrought copper fittings that are chemically cleaned of oxidizing elements, prefluxed, and protected with a "micro-thin" coating of tin.

USES: plumbing

SPECS/FEATURES: in addition to acting as a barrier to prevent copper from oxidizing, coating of tin is said to promote capillary action to improve solder flow and insure proper bond. Tin coating on fittings also increases tensile strength of cast fitting joints by 30%, according to manufacturer. New fittings can be stored indefinitely under normal conditions and still insure bonding without additional cleaning or fluxing.

AIA FILE NO. 29-B MFR: NIBCO, INC.

Circle 248 for further information

FROM **RUSSWIN**

for the "Continental look" . . . mortise-type locksets with new sag-proof lever handles



Russwin Citation Design 10-Strike Mortise Locks have lever handles specially designed to eliminate sag. You also get 10-Strike versatility: Interchangeable, precision-made parts provide variety of functions. Write Russell & Erwin Division, The American Hardware Corp., New Britain, Connecticut.

Circle 138 for further information

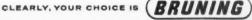
S FROM BRUNING



Five Hundred TRACING PAPER

Here's a new 100% rag tracing paper that hits a new high in translucency, in strength, in permanence. Bruning Five Hundred costs no more than conventional papers, yet offers surface textures (slightly different on each side) that eliminate feathering and smearing; that won't show erasures, even when repeated over same area.

TRY IT! Prove to yourself the superiority of Bruning Five Hundred. \$1.00 brings you 100 81/2 x 11 sheets, or a 10-yard x 36" roll. Charles Bruning Company, Dept. AEN-11, 1800 West Central Road, Mt. Prospect, Illinois.



Circle 139 for further information

PRODUCTS, EQUIPMENT, MATERIALS

WATER FLOW/LIGHTING CONTROLLED BY MUSIC

MFR'S DESCRIPTION: the flow of water in public fountains and the lighting of water now controlled by music. USES: interior and exterior water

fountains.

SPECS/FEATURES: An electronic device uses frequency signals from any electronic music system to produce an infinite variety of water patterns and color effects in indoor or outdoor water fountains. Control unit can be wired into a hi-fi system, an FM radio, an electronic organ or any other electronic music system.

AIA FILE NO. 38-G MFR: AQUACON, INC. Gircle 249 for further information

PORTABLE AIR DOME FOR VARIED USE

MFR'S DESCRIPTION: portable air dome constructed of white vinyl coated nylon material.

USES: portable shelter

SPECS/FEATURES: shelter measures 24' x 46' and is 12' high at the center. A squirrel cage fan, driven by an electric motor, provides supporting air for the dome. In winter, the air is passed over bottled gas burners to heat the shelter. No special preparation of the site is required, according to manufacturer. It may be placed on any reasonably level terrain: grass, sand, gravel, macadam or concrete may serve as floor area. Average time for construction and dismantling is said to be less than a day.

AIA FILE NO. 36-A

MFR: EASTERN MARINE PRODUCTS CORP.

Circle 250 for further information

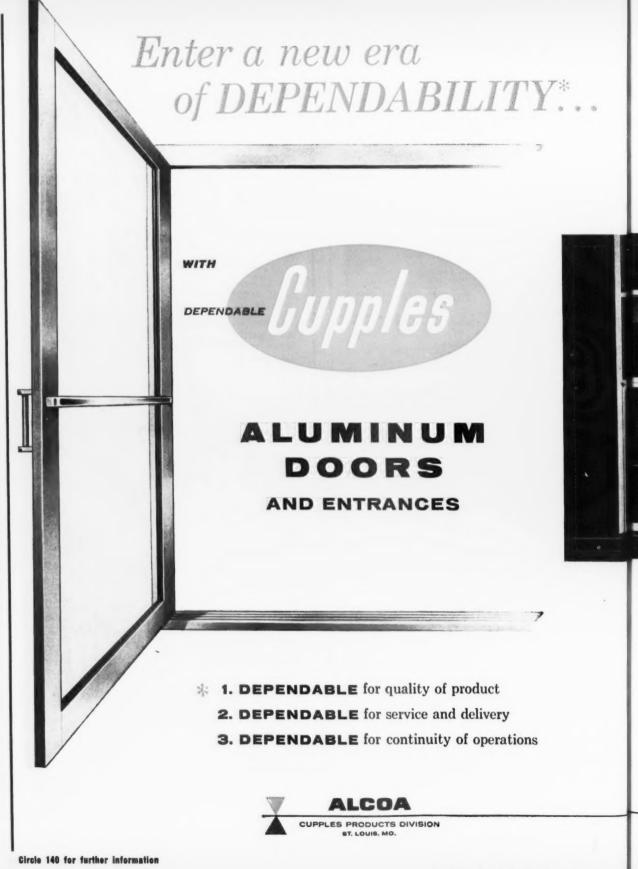
FLOOR/WALL COATING RESISTS MOISTURE

MFR'S DESCRIPTION: new plastic coating that is said to stop moisture, withstand sub-grade pressures, and permits second-coating with conventional emulsion and oleoresinous floor and wall paints.

USES: surface coating

SPECS/ FEATURES: surface conditioner specifically designed to act as a moisture stop on unpainted, damp concrete and masonry surfaces. It is self-curing, being set by the presence of moisture, and dries tack-free in 2 to 3 hours. Requires neither evaporation or oxidation for setting, according to manufacturer.

AIA FILE NO. 25-B-3
MFR: KYANIZE PAINTS, INC.
Circle 251 for further information

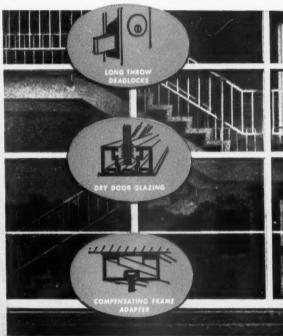


No









Entrance, Intramural Sports Building . Michigan State University, East Lansing, Mich. . Architects: Lewis J. Sarvis & Associates

Now check a few of the "40 line" features: All mechanical and molded joints are milled to hairline accuracy...Complete flush glazing...No exposed screws...Simplicity of installation and anchoring... 100% vinyl glazing, front and back...Vinyl sealed expansion mullion...Stock push-pull hardware interchangeable with custom styled hardware.

Add to all these features the DEPENDABILITY of product, of service and delivery, and the Company behind the product...and you'll appreciate why clients get more for their money when you specify "Cupples" for Entrance Doors and Frames. Write today for a Free file copy of our catalog or consult Sweet's. Section 16a/Cu. Address Dept. N-6111.





CUPPLES PRODUCTS CORPORATION

A DIVISION OF ALUMINUM COMPANY OF AMERICA DOWAGIAC, MICHIGAN

Circle 140 for further information

PRODUCTS. EQUIPMENT. MATERIALS

PHILIPPINE MAHOGANY FOLDING ROOM DIVIDER

MFR'S DESCRIPTION: Philippine mahogany finished folding room divider with all necessary heavy-duty hardware.

USES: partitioning

SPECS/FEATURES: dividers available in traditional flush or combined louver and raised-panel styles. Heights are 6'-8" and 8' with standard panel widths. Hinges are assembled and mortised at the factory.

AIA FILE NO. 35-H-6 MFR: KENNATRACK CORP. Circle 252 for further information

PHILIPPINE MAHOGANY IN FLEXIBLE/FOLDING DOOR

MFR'S DESCRIPTION: door is manufactured of colored Philippine mahogany, woven with vinyl for a multi-toned effect.

USES: partitioning

SPECS/FEATURES: flexible folding door is available in twelve colors and designed for residential or commercial uses. Installation is said to be simplified and is shipped packaged with all necessary hardware.

AIA FILE NO. 35-H-6

MFR: AMERICAN ACCORDION-FOLD DOORS, INC.

Circle 253 for further information

STEAM HEATING SPECIALTIES FOR VARIED USES

MFR'S DESCRIPTION: a series of steaming heating specialties.

USES: heating

SPECS/FEATURES: series includes radiator valves, inverted bucket traps, high pressure thermostatic traps, float and thermostatic traps. strainers and gauges. Varied items in series feature new improvements.

AIA FILE NO. 30-C-13 MFR: DUNHAM-BUSH INC.

Circle 254 for further information "INVISIBLE" GLASS IN WINDOW/PANEL UNITS

MFR'S DESCRIPTION: a new series of "invisible" window.

USES: commercial and industrial SPECS/FEATURES: "invisible" glass designed for use wherever clear, full, undistracted vision through a glass partition is an essential need. Glass system permits perfect viewing in brightest sunlight and under any artificial lighting conditions. A new innovation are panel units delivered ready to be installed immediately on delivery to site.

AIA FILE NO. 26-A-9 MFR: INVISIBLE GLASS CORP.

Gircle 255 for further information

LITERATURE

Literature cited in this department is available from various manufacturers and associations free of charge, except where indicated.

To obtain copies, circle the keyed numbers on the reader service cards facing pages 1 and 102.



PLYWOOD COMPONENTS

Brochure describes manufacturer's plywood component series, and applications. Outlined are the structural system, plywood box beams, stressed skin panels, and *Delta* structures. (6 pp.)

AIA FILE NO. 19-F
MFR: COUNCIL MANUFACTURING CO.
Girele 300

PORTABLE BASKETBALL FLOOR

"Outline Specifications for Portable Floors" discusses portable maple flooring which may be used for dancing, gymnasium work, roller skating, basketball, etc., either over present floors or over a lawn or other outside area. In addition to instructions concerning the surface or bearings upon which the portable sections are to rest, waterproofing where there is an outdoor installation and proper storage of the floor sections, the specifications outline in detail construction procedure in building the floor panels. AIA FILE NO. 23-B

ASSN: MAPLE FLOORING MANUFACTURERS ASSN.

Circle 301



TRUSSED RAFTER SYSTEMS

Booklet introduces a trussed rafter system for modern engineered roof framing, tailored to meet the requirements of the FHA, VA, and the Uniform Building Code. Various elevations, application photographs and explanatory text are included. (23 pp.)

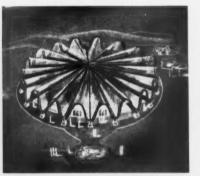
AIA FILE NO. 19-B-3
MFR: DENVER WOOD PRODUCTS CO.
Girela 302

JOIST/RAFTER SPANS

Maximum Spans for Joists and Rafters in Residential Construction was compiled so that materials in construction could be used to greatest advantage. The span tables included were derived in accordance with established engineering principles. Included are floor joists, low slope roof joists, ceiling joists and rafters. (46 pp.)

AIA FILE NO. 19
ASSN: NATIONAL LUMBER MANUFACTURERS ASSN.

Circle 303



LAMINATED TIMBER DESIGNING

After discussing the versatility of shapes and designs possible with the use of glued laminated wood space framing, manufacturer's brochure describes design procedures, connection details, and economies attainable in practical application. Includes load tables, typical specifications, properties of sections and design charts. Numerous buildings where glued, laminated framing was a major design factor are shown. (32 pp.)

MFR: UNIT STRUCTURES, INC.

SAWN ROOF TRUSSES

Design data on segmental bowstring trusses, standard bowstring trusses, bowstring trusses with peak build up, "parabow" trusses, multispan variations of bowstrings and strap connected trusses are shown in a new brochure. (4 pp.)

AIA FILE NO. 19-B MFR: ROSBORO LUMBER CO.

Circle 305



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WOOD LITERATURE LISTINGS

Bibliography lists literature now available on lumber and wood products in this country. Included is a list of associations supplying the literature, and various other divisions covering subjects such as lumber, veneer, plywood, timber construction, home building, forestry, and allied areas. (23 pp.)

AIA FILE NO. 19
ASSN: NATIONAL LUMBER MANUFACTURERS ASSOCIATION

Circle 306

ENGINEERING IN WOOD

Brochure discusses the production and uses of various wood products including glued laminated arches, beams, rigid frames, trusses and decking. Span tables and typical cross-sectional designs are covered along with suggested specifications and other pertinent data. (22 pp.) AIA FILE NO. 19-B-3

MFR: TIMBER STRUCTURES, INC.

Circle 307



PRESTRESSED CONCRETE

Booklet describes 21 different types of structures in which prestressed concrete is frequently used, along with primary reasons for its selection in each case. Illustrations include typical units. Literature tells how prestressed concrete is made, outlines applications and advantages and pinpoints the locations of PCI member plants. (20 pp.)

AIA FILE NO. 4-E-12

ASSN: PRESTRESSED CONCRETE INSTITUTE

Circle 308

POLE BUILDINGS

Condensed data on construction of pole buildings is presented in four brochures. Types of pole buildings discussed are: expandable, flat-top, expandable clear-span, industrial, commercial, and bay-gable. (16 pp.) AIA FILE NO. 19-A-3

MFR: WOOD PRESERVING DIV., KOPPERS CO., INC.

Circle 309

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TONGUE-AND-GROOVE PLYWOOD

Data is given in this report on tongue-and-groove joints for ½", 5%", and ¾" plywood. Tests are described which show the tongue-and-groove joint, as an alternate to blocking under panel side joints, for combination subfloor-underlays. Data states tongue-and-groove joint may also be used for roof sheathing or wall sheathing in lieu of blocking for edge support. Use of a plywood shiplap joint is also reviewed.

AIA FILE NO. 19-F

ASSN: TECHNICAL DEPT., DOUGLAS FIR PLYWOOD ASSN.

Circle 310

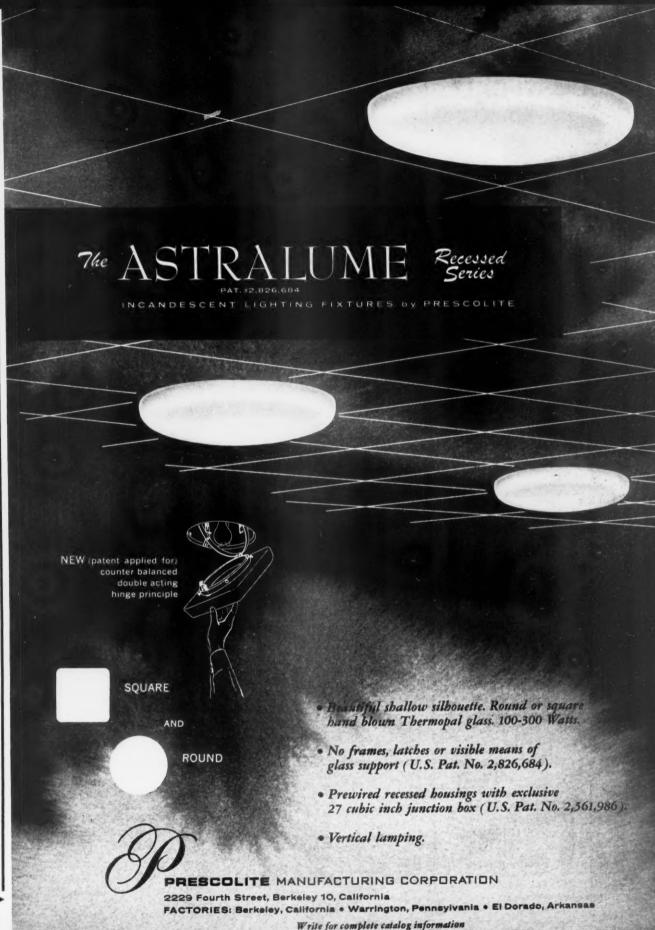
HARDWOOD FLOORING

A new printing of the popular "Please Don't" folder which explains to architects that problems from expansion of kiln-dried hardwood flooring, caused by moisture absorption, can be eliminated if the rules for efficient handling at the job site are followed. Folder also devotes space to the subject of nails, and lists sizes and types for fastening this flooring. AIA FILE NO. 19-E-9

ASSN: MAPLE FLOORING MANUFACTURERS ASSN.

Circle 311

Circle 141 for further information ->
November 1961



lews

entirely new from every angle

ACOUSTI-CALL

TELEPHONE BOOTH



MODEL 20 IDEAL FOR VARIETY OF LOCATIONS ... SAVES SPACE, TOO

Contemporary styling, functional design, and compact size (27" wide and $17\frac{1}{8}$ " deep over-all).

Compatible colors . . . blue, coral and green with ivory colored interiors—provide architectural continuity.

Caller comfort assured in quiet, private atmosphere. Phone mounted on *left* leaves plenty of room on *right* for books or writing.



DESIGN-ENGINEERED FOR ONE-MAN INSTALLATION IN 30-45 MINUTES



Model 20 booklet available with details and specifications. Write today.



ACOUSTICS DEVELOPMENT CORPORATION

1063 North
Northwest Highway
Park Ridge, Illinois
TAlcott 5-2125

Circle 142 for further information

LITERATURE

REDWOOD EXTERIOR FINISHES



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REDWOOD EXTERIOR FINISHES

Brochure provides the latest information on exterior finishes for California redwood—the result of more than 10 years of research. Illustrated in color, booklet is designed to aid the architect in selecting the best finish to enhance, modify, or change the appearance of redwood. (8 pp.) AIA FILE NO. 19-E

ASSN: CALIFORNIA REDWOOD ASSN. Gircle 312

WOOD PRODUCTS

Brochure recently made available contains all the product information published by a leading wood product manufacturer. Brochure includes detailed information on a series of plywood, doors, redwood siding and paneling, insulating board acoustical, and hardboard products, movable partitions, and various acoustical products. (80 pp.)

AIA FILE NO. 17/19/23/35 MFR: SIMPSON CO.

Circle 313

WESTERN RED CEDAR

Five new items of literature discuss paneling, finishing, tongue and groove, paneling patterns and finishes, of Western red cedar. Literature forms a complete informative package on this wood's patterns, application and finishing techniques. (14 pp.)

AIA FILE NO. 19

ASSN: WESTERN RED CEDAR LUMBER ASSN.

Circle 314

PRESSURE-TREATED LUMBER

Description of a pressure-treated lumber, said to last up to ten times longer than untreated lumber, is given in a new brochure. Various applications, accompanied by photographs, for residential, commercial, religious and industrial construction are included. (11 pp.)
AIA FILE NO. 19-A-3

MFR: WOOD PRESERVING DIV., KOPPERS CO., INC.

Circle 315

LUMBER INFORMATION

Grades, uses and specifications of various types of lumber are covered in a new brochure. Included is descriptive information on West Coast Douglas Fir, West Coast Hemlock, Western Red Cedar, Sitka Spruce and White Fir. (19 pp.)

AIA FILE NO. 19-A-2

ASSN: WEST COAST LUMBERMEN'S ASSN.

Circle 316

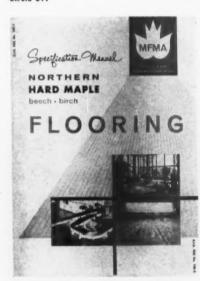
WOOD FALLOUT SHELTERS

Complete plans for construction of an atomic fallout shelter designed to meet the Office of Civil and Defense Mobilization's recommended standards have been made available to architects and consulting engineers. Construction details are discussed in full with drawings illustrating recommended procedures.

AIA FILE NO. 19-N

ASSN: WEST COAST LUMBERMEN'S ASSN.

Circle 317



HARDWOOD FLOORING SPECS

A new printing of the Specification Manual for Northern hard maple, beech and birch flooring has just been issued. Literature on hardwood flooring includes the latest complete grading rules established by the Association. Physical characteristics, qualities, thicknesses and face widths and other pertinent data are included. (8 pp.)

AIA FILE NO. 19-E-9

ASSN: MAPLE FLOORING MANUFACTURERS ASSN.

Circle 318



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HENDRICK

Manufacturing Company Carbondale, Pa.

PERFORATED METAL * PERFORATED METAL SCREENS * WEDGE SLOT AND MEMDRICK WEDGE WIRE SCREENS * ARCHITECTURAL GRILLES * MITCO OPEN STEEL FLOORING * SHUR-SITE TREASI ARMORGRIDS * HEMDRICK HYDRO DEMAZER

Gircle 143 for further information

Architectural & Engineering News

NON-COM°
FIRE PROTECTED WOOD

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NON-COMBUSTIBLE WOOD

Literature on a noncombustible wood gives a full description on how this product helps increase fire safety through a pressure treatment. Uses of the product for roof decking, partitions and wall assemblies are discussed. Included are case histories, in which fire-retardant treated wood was exposed to fire; there is also a discussion on acceptance of this type product by insurance, government and building code officials.

AIA FILE NO. 19-K MFR: WOOD PRESERVING DIV., KOPPERS CO., INC.

Circle 319



PLYWOOD SIDING

Brochure on the use of plywood siding in residential applications includes subjects such as guarantees, cost factors, application instructions, installation, finishes and various styles of sidings. Each subject is fully illustrated. (16 pp.)

AIA FILE NO. 19-D-2
MFR: WELDWOOD SIDINGS DEPT., U. S.
PLYWOOD CO.

Circle 320

News

SPECS FOR 1/2" SHEATHING

New recommended product and application specifications for ½" nailbase fiberboard sheathing have been released. Descriptions on the use of ½" nail-base fiberboard sheathing as recommended by the FHA and the

Association are included.

ASSN: INSULATION BOARD INSTITUTE
Gircle 321

TIMBER FABRICATION

Brochure reviews research and standards for timber in commercial and industrial buildings, schools and churches. Manufacturer's wood producing facilities are also described. AIA FILE NO. 19-B

MFR: ROSBORO LUMBER CO.

Circle 322

WOOD/STEEL FIRE TESTS

"Comparative Fire Test on Wood and Steel Joists" describes actual testing made, test criteria, test structures and equipment, progress of the test, and test results and conclusions. (7 pp.)

AIA FILE NO. 19-A-2

ASSN: NATIONAL LUMBER MANUFACTURERS ASSN.

Circle 323

GRADING MAPLE FLOORING

Direct color reproductions of maple flooring panels illustrate typical areas of flooring of standard production. Illustrations show the pattern characteristics to be expected in each of the grades.

AIA FILE NO. 19-E-9

ASSN: MAPLE FLOORING MANUFACTURERS ASSN.

Circle 324

LIGHTING



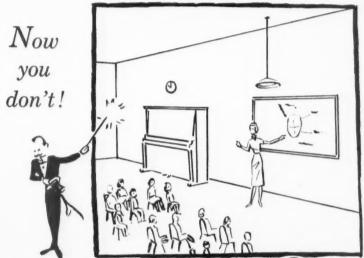
AREA LIGHTING

A major manufacturer of lighting equipment has released his first descriptive brochure on area lighting. Included in the well illustrated brochure are studies of such areas as sports and recreation, industrial and commercial, building facades, other vertical surfaces, walkways, shopping centers and parking lots. A critique on lighting problems and their solutions is included. (29 pp.)

AIA FILE NO. 31-F-22 MFR: GENERAL ELECTRIC CO.

Circle 325





It's not magic...it's an



PNEUMATIC PARTITION

And it can be quickly removed, replaced, or relo-

cated anywhere within the classroom without the need for floor or ceiling tracks.

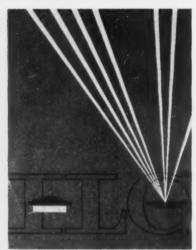
How does it work?

This way . . . When air is added the patented air wall cap is raised to the ceiling and locks the panel in position. This, plus the tongue and groove joints provides a rigid installation with the appearance of solid, permanent wall. Sound retardance is equal to that of a standard 2"x 4" stud and plaster wall. You will find the solution to your space utilization problems by using Educator's Air Wall Pneumatic Partitions. . . . Write for further information.

Educators

MANUFACTURING COMPANY
TACOMA, WASH.

Circle 144 for further information



INDIRECT LUMINOUS CEILING

A new architect-oriented brochure entitled, Lighting In The Right Direction Engineered For Architects, and featuring manufacturer's products, is now available.

AIA FILE NO. 31-F-231 MFR: SILVRAY LIGHTING, INC. Circle 326



WIRING DEVICES

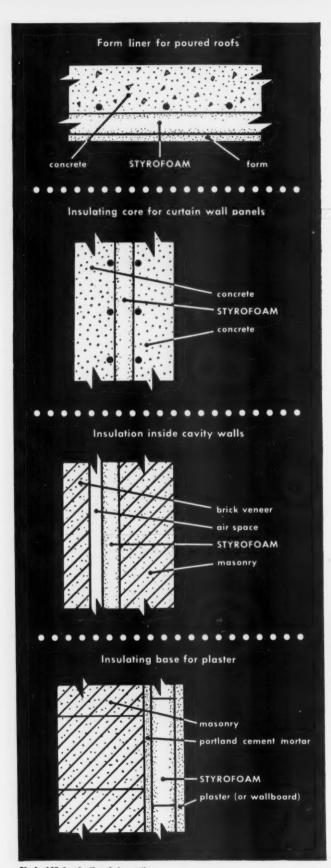
Brochure describes a series of electrical wiring devices and features every type of switch, fixture and device, including interchangeable and conventional switches. Many new items, a 15 page index, and a price list are also included. (90 pp.) AIA FILE NO. 31-C-7

MFR: PASS & SEYMOUR, INC. Circle 327



LIGHTING FIXTURE BROCHURE
Brochure discusses uses and current

Brochure discusses uses and current trends in lighting, as interpreted by



Gircle 145 for further information

Styrofoam simplifies construction of insulated . . .

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- THIN-SHELL ROOFS
- CONCRETE CURTAIN WALLS
- CAVITY WALLS
- POURED CONCRETE AND BLOCK WALLS



STYROFOAM

solves design problems, speeds construction ... and adds permanent insulating values!

Styrofoam brand insulation board provides triple benefits for commercial building construction. Proved by long use, Styrofoam retains superior insulating values year after year . . . permits use of new, more efficient techniques . . . and cuts the time and cost of insulated construction.

Styrofoam insulation is both a superior insulating material and a rigid structural material. Styrofoam has alow "K" factor that stays low, because water and water vapor don't penetrate it and build up inside. Buildings stay more uniformly warm (or cool) and dry in any weather, saving on heating and cooling costs.

Styrofoam insulation makes new techniques practical. For example, lightweight, insulated concrete curtain walls can be produced quickly using Styrofoam as the core. Positive keying action to concrete minimizes need for fasteners or ties. The final concreteinsulation-concrete "sandwich" is strong, lightweight and economical.

For thin-shell application, Styrofoam insulation is a valuable construction material and insulation. For form work of all kinds, it serves as form liner, permanent insulation, and vapor barrier applied in a single step! The use of Styrofoam in this way provides a minimum 70% reduction in heat loss.

Insulating plasterbase—Styrofoam insulation eliminates the need for furring and lathing when insulating masonry walls. Just adhere Styrofoam to the wall with portland cement mortar, then apply plaster... or wallboard, if you wish. The use of Styrofoam as an insulating plasterbase provides 35 to 45% reduction in heat loss.

Cavity-wall buildings stay warm and dry when Styrofoam insulation is in

the cavity. Simply adhere it to the outside face of the inner wythe. Because of its high resistance to water vapor, Styrofoam eliminates the need to build in a separate vapor barrier. The addition of Styrofoam to cavity-wall construction provides a 50 to 60% reduction in heat loss.

Low-cost Styrofoam has no food value to attract insects, and will not rot. Installation and handling are quick and easy. For more information on Dow Building Products, write THE DOW CHEMICAL COMPANY, Midland, Mich., Plastics Sales Dept. 1502-JF11.

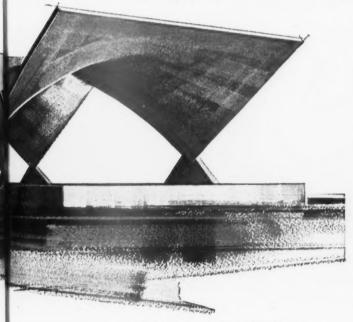
Styrofoam is a registered trademark of The Dow Chemical Company. It is applied only to the homogeneous expanded polystyrene made according to an exclusive Dow process. Styrofoam brand insulation board is available only from Dow and its authorized representatives.



Styrofoam is laid over wood form and covered with reinforcing.



After removing form boards, the Styrofoam in the ceiling is ready for finishing.



This unique h-p roof was poured over Styrofoam, which was finished on the underside with two coats of plaster and a sprayed acoustical finish.

THE DOW CHEMICAL COMPANY



Midland, Michigan

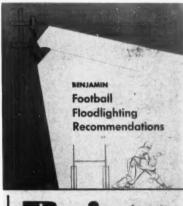
Circle 145 for further Information

LITERATURE

interior planners. Brochure covers each area of residential lighting in detail, with full-color room settings. Over 450 styles of lighting fixtures are featured. (96 pp.)

AIA FILE NO. 31-F-23 MFR: LIGHTOLIER

Circle 328



Benjamin

FOOTBALL FLOODLIGHTING

Special manual contains specifications and installation data on football floodlighting. Installation data such as minimum mounting heights, recommended spacing and suggestions for the particular type and number of floodlights required for specific seating capacities are included. (32 pp.)

AIA FILE NO. 31-F-22

MFR: BENJAMIN DIV., THOMAS INDUSTRIES, INC.

Circle 329

LIGHTING COLOR WHEELS

Brochure explains a series of weather proof mobile lighting with outdoor color wheels. Various applications of the "color wheel" are discussed with emphasis placed on lighting for holiday seasons.

AIA FILE NO. 31-F-22

MFR: STEBER DIV., THE PYLE-NA-TIONAL CO.

Circle 330

EMERGENCY LIGHTING

A complete data file on a 6-volt battery operated emergency lighting system has been made available. Standard file-drawer size, the new fact file contains a booklet explaining the need for emergency lighting. It includes typical installation diagrams and prices along with other data.

AIA FILE NO. 31-F MFR: ELECTRIC CORD CO.

Circle 331

O'Hare-Chicago Motor Hotel, Chicago, Illinois. Architects: Arthur Swanson & Associates, Skokie, Illinois. Contractor: H. Andrews & Sons, Inc., Chicago, Illinois.

Space provided: main lobby, gift shop, vestibule, registration desk and office, carport. Structural framing: glulam beams spaced at 6'-8", resting upon glulam columns. Butterfly beam-and-column bents placed in pairs and spaced at 16'-5" and 21'. Exterior walls: weathered lannon stone with light weight concrete backup. Interior walls: stone and vertical wood paneling. Floors: carpeting over reinforced concrete slab; terrazzo in vestibule. Roof: 4-ply built-up surface over 3" insulating board. Lighting: incandescent and fluorescent. Heating and ventilating: combination heating and cooling of gas absorption type, using central type installation with individual thermostatic controls for each room. Area: framed by glulam timbers, 7,675 square feet including carport.



Architects who seek to avoid the ordinary get a powerful assist from the natural warmth, texture and pattern of glued laminated timbers. As manufactured by Timber Structures, Inc., these quality controlled structural members provide dependable performance and handsome appearance that richly reward the architect's judgment.



MIMBER STRUCTURES, INC.

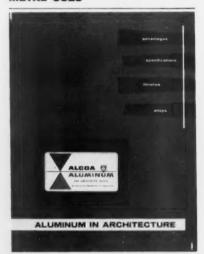
P. O. Box 3782-Q, Portland 8, Oregon

DIVISION OFFICES IN RAMSEY, N.J.; SCHILLER PARK, ILLINOIS; DALLAS, TEXAS
District Representatives in Major Cities Throughout the United States • Member A. I. T. C. and Producers' Council

Circle 111 for further information

LITERATURE

METAL USES



ALUMINUM IN ARCHITECTURE

Advantages, typical specifications, and descriptions of various finishes and alloys of aluminum sheet for use in architecture have been published in a new brochure. Seventeen sample swatches of aluminum colors and representative shades are included. (8 pp.)

AIA FILE NO. 15-J

MFR: ALUMINUM COMPANY OF AMERICA

Circle 332

STRUCTURAL WIRE ROPE

Use of steel structural wire rope in suspended roofs, cable-supported cantilevers, circular roofs, and other architectural designs is the subject of a new brochure. Generously supported by photographs, the text discusses use of structural wire rope in many well-known buildings, and in other construction. (32 pp.)

MFR: BETHLEHEM STEEL CO.

Circle 333

PORCELAIN ENAMEL PANELS

Brochure describes a series of multi-color curtain wall and veneer porcelain enamel panels. Brochure discusses large panel construction, curtain wall remodeling, porcelain enameled expanded metal, stainless steel panels, louvers and sunshades, porcelain enamel on steel and porcelain enamel on aluminum. New design patterns are also shown. (8 pp.) AIA FILE NO. 17-A

MFR: INGRAM-RICHARDSON MANUFACTURING CO.

Circle 334

SCHOOLS/PORCELAIN ENAMEL

"Porcelain Enamel in School Construction" is the title of a new folder showing the application of porcelain enamel in schools. Illustrations feature architectural uses of porcelain enamel in the form of murals, textured surfaces and finish treatments, in a wide variety of school buildings. (4 pp.)

AIA FILE NO. 17-A

MFR: DAVIDSON ENAMEL PRODUCTS, INC.

Circle 335

STRUCTURAL TUBING

File-folder contains information on a series of mechanical tubings and structural pipe; a price list, and details giving suggested uses, are enclosed.

AIA FILE NO. 13-A MFR: TEX-TUBE, INC.

Circle 336

COLORED STEEL SIDING

Revised brochure on a series of vinyl protected corrugated steel siding contains information on the descriptions, features, flashing and sheet details, selection and specification of the product. (8 pp.)

AIA FILE NO. 12-C-1 MFR: GRANCO STEEL PRODUCTS CO.

Circle 337

GAS-FIRED UNIT HEATERS

Bulletin describes a new series of centrifugal blower type gas-fired unit heaters. Operating and construction features of the new unit are described and an "exploded view" photograph illustrates the unit's components. An outline type illustration provides all basic dimensional data needed for preparing installation layouts. Performance data is tabulated and shows heat input, heat output, air delivery data, blower pulley data and motor data for each of the 8 sizes in the series. (4 pp.)

AIA FILE NO. 30-C
MFR: INDUSTRIAL DIV., AMERICANSTANDARD

Circle 338

CONTROLLED STEAM HEATING

Information and examples of how to select the correct unit from a line of heat exchangers for controlled steam heating of water. A combination index and rating chart, to aid selection when sizing a heat exchanger, is also given. (30 pp.) AIA FILE NO. 30-C-25

MFR: ALSTROM CORP.

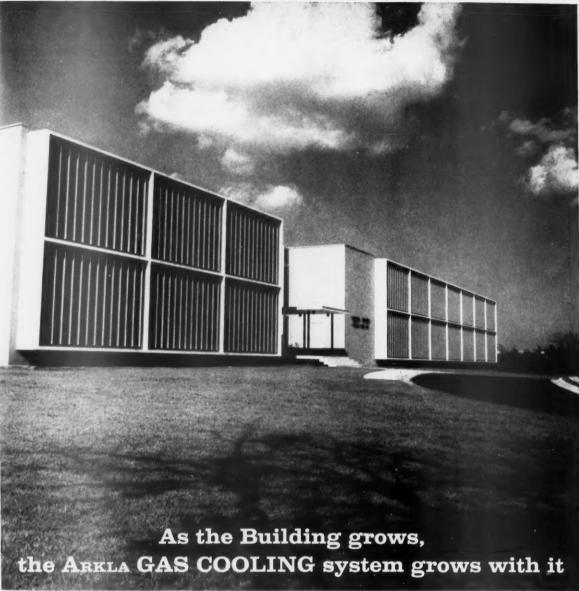
Circle 339

INFRA-RED HEATERS

Application manual for a series of gas-fired infra-red heaters for commercial and industrial use describes the use of these heaters. Manual describes body heat loss and methods of controlling such loss. Descriptions

Circle 148 for further information about PRESCOLITE pp 74-75-

Architectural & Engineering News



Architect: Folger & Pearson; Mechanical Contractors: Trong & Nichols. Modern gas cools and heats this headquarters building of Yellow Transit Freight Lines in Kansas City, Missouri. The Arkla Gas air conditioning unit uses the same gas-fired boiler that heats in winter to cool in summer,

The headquarters building of Yellow Transit Freight Lines, Kansas City, Missouri, was designed to take a third story without major alterations. That's why they chose Arkla gas cooling units...a system that can "grow" quickly and at low cost.

When the building expands, they'll just add an Arkla

unit. They go on the line right next to the rest, using the same basic piping – and steam from the same gasfired boiler that energizes all the Arkla units.

The present cooling system includes five 25-ton Arkla Gas Absorp-

tion Water Chillers. These versatile units use steam from the gas-fired boiler to provide chilled water for comfort cooling. The same boiler heats in winter. And thrifty gas keeps fuel costs low.

For specific information on Arkla gas air conditioning, call your local Gas Company. Or write Arkla Air Condition-

ing Corporation, General Sales Office, 812 Main St., Little Rock, Arkansas. American Gas Association.

FOR HEATING & COOLING...
GAS IS GOOD BUSINESS!



For increased cooling capacity, at low cost, additional Arkla units can be installed.

Circle 147 for further information

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News





Illus. Cat. No. B-103-Y 3-arm teak spreader with three "Y" style 2-piece glass shades.



Illus. Cat. No. **B-105-U** 5-arm teak spreader with five "U" style glass shades.

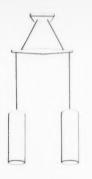
PRESCOLITE'S EXCITING NEW

PENDANTS

A gay and colorful grouping of pendant forms designed and executed in hand-blown combinations of colored glass as well as exquisite satin opal glass. Metal shades come in striking baked enamel finishes set off with lustrous brass accents. All shades are suspended by white plastic cords, and are designed for mounting on $3\frac{1}{4}$ " or 4" outlet boxes. Teak spreaders are of pure Bangkok Teak with hand-rubbed satin cabinet finish. You can create multiple combinations of forms and colors and stagger the heights to form focal points of interest for any interior. Write for complete catalog information.

PRESCOLITE MANUFACTURING CORPORATION
2229 Fourth Street, Berkeley 10, California

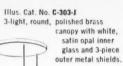




Illus. Cat. No. S-202-0 2-light teak spreader with two "O" style glass shades.



Illus. Cat. No. **\$-203-K** 3-light teak spreader with three 2-piece "K" style shades. White satin opal inner glass, metal outer shades.

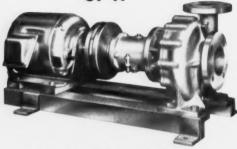




Illus. Cat. No. S-205-R Rectangular metal canopy, 5-light teak spreader with metal shades finished in baked enamel and polished brass.

Illus. Cat. No. A-101-F Single canopy, white satin opal inner glass and 2-piece outer metal shields. **NOISELESSNESS**

THE SOUND OF A



DUNHAM-BUSH B-9 CENTRIFUGAL PUMP

Dunham-Bush, recognizing the importance of ultra quiet pump operation in handling chilled or hot water comfort conditioning systems, has designed its new B9 with decibels in mind. Sleeve bearings on motor and drive . . . flexible coupling . . . specially balanced motors . . structural steel base . . . combine to produce the quietest pump. Just listen!

You can expect a Dunham-Bush B9 pump not only to operate quieter but longer. Exclusive and unique sleeve bearing forced feed lubrication and "self aligning" coupling provide considerably longer bearing and coupling life.

Write for File No. 1445 and an appointment to listen to B9 quietness.



- 1750 RPM Sleeve Bearing Motors
- Capacity up to 1000 GPM and Heads to 80 feet
- 11 Models-1 H.P. thru 10 H.P.
- Base-Structural Steel
- Seal-Rated at 250 degrees as standard equipment
- Specifically designed for efficient and quiet handling of chilled or hot water in comfort conditioning systems



Request additional literature describing the complete Dunham-Bush family of Pumps . . . In-Line Circulators and Close Coupled Centrifugal Pumps



DUNHAM-BUSH, INC.

WEST HARTFORD 10, CONNECTICUT, U. S. A. SALES OFFICES LOCATED IN PRINCIPAL CITIES

Circle 149 for further information

Architectural & Engineering News

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are given of full heating jobs and spot heating. Two general methods for calculating requirements are explained in detail. There are seven tables, including one which shows average outdoor winter temperatures for all parts of the U.S. There are 11 graphs and engineering drawings. (16 pp.)

AIA FILE NO. 30-B

MFR: PANEL BLOC DIV., BETTCHER MANUFACTURING CORP.

Circle 340

ELECTRICAL

"BLACK LIGHT"

Publication offers information on black light sources, representative black light applications, and several basic black light procedures. "Black light" is the popular name for nearultraviolet energy. While invisible to the human eye, the energy causes certain materials to fluoresce, or produce visible light. (12 pp.) AIA FILE NO. 31-F-29

MFR: GENERAL ELECTRIC CO.

Circle 341

CIRCUIT BREAKERS

Brochure provides drawings, sketches, photographs, specifications and charts as an aid to designers, architects and consulting engineers concerned with use and specification of circuit breakers and switchgears. (40 pp.)

AIA FILE NO. 31-D-4

MFR: I-T-E CIRCUIT BREAKER CO.

Circle 342

FALLOUT SHELTERS/POWER

Pamphlet explains the value of an independent power source for emergencies and tells how to choose the appropriate electric plant in fallout shelters and other locations. (4 pp.) AIA FILE NO. 31-A-61

MFR: KOHLER OF KOHLER

Gircle 343

TIME SYSTEMS

Integration of time recorders with centralized self-regulating master time systems is described in a new folder. Both minute impulse and wired synchronous systems are described with circuit diagrams. (4 pp.)

AIA FILE NO. 35-i-26

MFR: CINCINNATI TIME RECORDER CO.

Circle 344

MISCELLANY

FIBERBOARD INSULATION

"How To Save With The Sheathing That Insulates" is the title of a recently released instructional book-



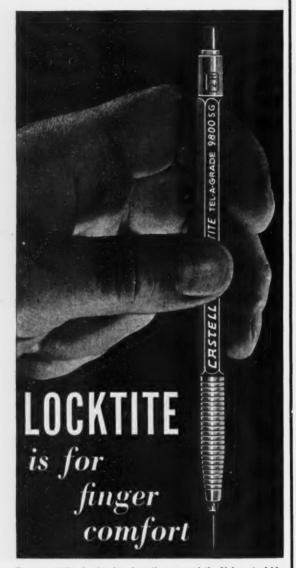
Send for complete details today.

WHEELER REFLECTOR

Company · Division Franklin Research and Development Corp. MAIN STREET, HANSON, MASSACHUSETTS



Gircle 150 for further information



The man at the drawing board gently massaged the kinks out of his fingers Watching hundreds of draftsmen and designers, architects and engineers go through the same motions, inspired us to develop the long-tapered, no-slip, functional grip in #9800 SG Locktite Tel-A-Grade Lead Holders We designed a gold-plated aluminum barrel with special serrations that give you smooth traction and blessed relief for your tired fingers

You'll like Locktite's bull dog clutch and unique indicator which reveals the degree in use at a glance - Yes, you can buy cheaper lead holders • But none can match Locktite's precision performance and its soothing comfort • Backed by a 2-year no-nonsense guarantee

If any part breaks in normal use, A.W.Faber will replace the entire holder without cost
Join the masters of your profession - Buy Lecktite today - Castell Drawing Leads #9030, identical in grade and quality with world-famous Castell drawing pencil ■ Usable in all standard holders, but perfect for Locktite Draws perfectly on all surfaces, including Cronar and Mylar base films = 78 to 10H, and a kaleidoscope of colors

A.W.FABER-CASTELL

Pencil Co., Inc., Newark 3, N. J.

Our Bicentennial year-1761-1961 200 years of uninterrupted nufacturing experience.



Circle 151 for further information

LITERATURE

let. Literature describes the new industry insulation rating program for regular fiberboard sheathing, and tells how the product can help cut costs. (8 pp.)

AIA FILE NO. 19-D-3

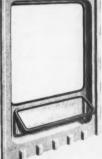
ASSN: INSULATION BOARD INSTITUTE

Circle 345



Booklet offers the more significant developments in constructional steels, and newest design concepts for their most effective and efficient use. It is a compilation of technical data and new ideas, arranged as a convenient and compact guide for those who design, fabricate and build with structural steels. Data is presented on the structural carbon steels, A7, A373, and A36; the high-strength and highstrength low-alloy steels, A242, A440, and A441; and the heat treated constructional alloy steels "T-1" and "T-1" type A. (28 pp.)

AIA FILE NO. 13-A-1 MFR: U. S. STEEL CORP. Circle 346

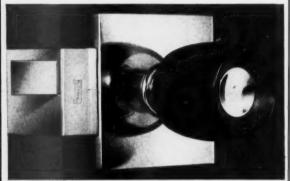


WINDOW FOR PANELING

A window designed expressly for use with manufacturer's series of exte-

FROM **RUSSWIN**

locksets with knobs of rich, rare woods that accent decor of interiors



Russwin Unilocs with Rosewood knob - or ebony cocobolo, or walnut — provide handsome accent for well-appointed interiors. Rich, distinctive. Famous Russwin heavy-duty Uniloc construction. Entire lock-set installs as a unit. No mortise. Write Russell & Erwin Division, The American Hardware Corp., New Britain, Connecticut.

Gircle 152 for further information

3 NEW

P&S ROCKER-GLO SWITCHES

all available in Despard (interchangeable) type or strap type



No. 2211-SL



No. 2221-SP



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No. 2225-S

LIGHTED HANDLE ROCKER-GLO

- **Pinpoints** switch location in darkened areas Long-life neon
- lamp glows in OFF position only Single pole or
- three way. Rating: 15 Amps., 120 V.

PILOT LIGHT

- Instantly shows when appliances or lights are on. Tiny red jewel lights in ON
- 15 Amps., 120 V, A.C.

HANDLE ROCKER-GLO

- position only. Single pole only. Rating:

3 REMOTE CONTROL ROCKER-GLO

- Momentary contact, center "off" switch
- Designed especially for low voltage remote control operations
 - Single pole, double throw. Rating: 10 Amps., 48 V, A.C.



For more information write Dept. AE1161 PASS & SEYMOUR, INC SYRACUSE 9, NEW YORK

40 E. 42nd St., New York 17, N.Y. 1400 N. Pulaski Rd., Chicago St.; No. : He-Carpids Rentrew Electric Co., Ltd., Toronto Co. Circle 153 for further information

Architectural & Engineering News

rior panels is reviewed in a recently issued brochure. Various colors, vents, hardware, gaskets and glass strength are discussed. Window dimensions are included. (4 pp.)

MFR: STRAN-STEEL CORP.

Circle 347

DESIGNING OF MOTELS

Architectural ideas by Arthur Swanson AIA, a prominent motel architect, appear in a new brochure. Uses of hardboard for interiors and exteriors are suggested and presented in renderings and brief plans. Included are ideas for guest rooms, open lobbies, and other areas. (16 pp.)

AIA FILE NO. 19
MFR: MASONITE CORP.

Circle 348

STEELCRAFT STANDARDS







DOOR STANDARD SHEET

A new standard sheet for drafting rooms has been developed by a leading manufacturer of metal doors and frames. This is a ready reference sheet for use by architects and consulting engineers. Manufacturer says standard sheet simplifies selection of the proper frame for different types of wall construction, and the proper door for the specified use. AIA FILE NO. 14-B

MFR: THE STEELCRAFT MANUFACTUR-

Circle 349

trol

E1 161

MASONRY SEALS

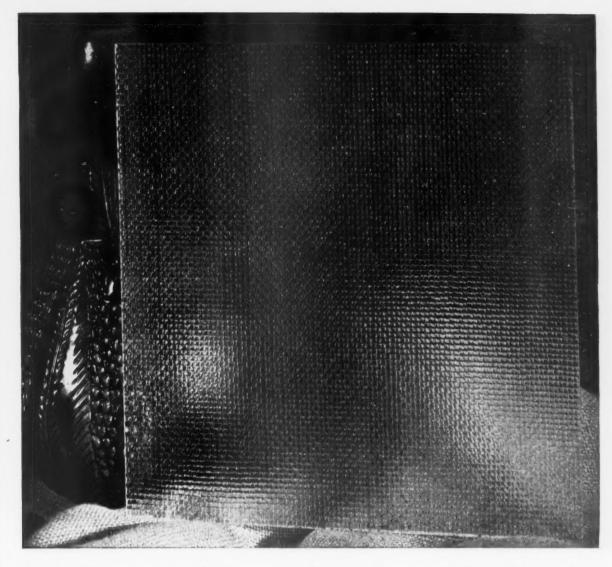
Brochure describes a series of seals and gaskets for sealing control joints, joints, and cushioning stresses in masonry construction. Various types and their applications are discussed.

AIA FILE NO. 10-K

MFR: WILLIAMS EQUIPMENT & SUPPLY CO., INC.

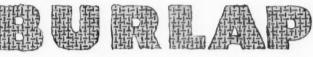
Circle 350

November 1961



The Dramatic Texture of Fabric... The Gleaming Beauty of Glass... now artfully combined in

NEW



BY MISSISSIPPI

Exceedingly brilliant and sparkling, highly obscure, new Burlap, figured glass by Mississippi has excellent diffusing properties and its functional and decorative applications are limited only by the imagination. Use it lavishly or sparingly and gain light, drama, distinction. Burlap glass is available at your nearby quality glass distributor. Free sample on request.



MISSISSIPPI

88 Angelica St. · St. Louis 7, Missouri

NEW YORK . CHICAGO . FULLERTON, CALIFORNIA

Thick- ness	Approx. Light Transm'n	Weight Unpacked Lbssq.ft.	Maximum Sizes Untreated	Maximum Sizes G-R 2 Sides	Maximum Sizes G-R 1 Side
1/8"	87.5%	2.0	48 x 132	48 x 132	48 x 132
7/12"	85.9%	2.8	60 x 132	60 x 132	60 x 132

Recommended primarily for partitions; also shower doors and stalls, and kindred uses.

Circle 154 for further information



FIRE SAFETY EQUIPMENT

Booklet illustrates and describes a series of fire extinguishers, smoke and fire detectors, and built-in carbon dioxide systems. Featured in the booklet is a chart outlining which types of extinguishers are suitable for use on various type fires. AIA FILE NO. 29-E-3

MFR: WALTER KIDDE & CO., INC. Circle 351

PLASTICS INFORMATION

Pocket-size folder compares outstanding properties and typical applications of 13 major plastic families in common use. Included are acrylic, Implex, nylon, Teflon, polyethylene, high and medium impact styrene, phenolic and fibrous glass reinforced polyesters and epoxies. Five major misconceptions about plastics are discussed.

MFR: CADILLAC PLASTIC & CHEMICAL

Circle 352

PRESTRESSED CONCRETE

Prestressed, precast concrete floor, roof and wall systems as produced by the manufacturer are described in detail in a new brochure. Typical details and specifications are supplemented by photographs showing applications. (8 pp.)

AIA FILE NO. 4-K

MFR: SPANCRETE MACHINERY CO. Circle 353

ECONOMY CURTAIN WALL

New brochure describes Series 303 curtain-wall system on the basis of mullion selection, mullion structural data, modular construction, windows, panels and aluminum finishes. Crosssections illustrate use of curtain wall system in one-, two- and multi-story buildings. Details are also shown for each section of the system. (8 pp.) AIA FILE NO. 17-A

MFR: REYNOLDS METALS CO. Circle 354

MICROFILMING CASE STUDIES

Three illustrated booklets-describing the use of microfilm in three agencies of the Government-are available. The brochures, reprinted from recent magazine articles, describe the role of microfilm at the Social Security Administration, the U. S. Bureau of Public Dept and the U. S. Army Finance Center. AIA FILE NO. 35-H-31

MFR: MINNESOTA MINING & MANU-FACTURING CO.

Circle 355

AIA FILE NO. 24

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Architectural & Engineering News

COMPACT SEWAGE TREATMENT

New brochure describes a series of compact sewage treatment plants for housing developments, industrial plants and the light construction market. Brochure describes and illustrates design and operating features, installation practices, and other aspects of the systems. (12 pp.) AIA FILE NO. 29-C-2

MFR: DORR-OLIVER, INC.

Circle 356

LAB ACCESSORIES

Brochure shows complete specifications and listings of a series of laboratory accessories designed for use in industrial, educational, medical and scientific applications. Detailed information includes photographs and sketches showing dimensions and sizes on each item. (16 pp.)

AIA FILE NO. 35-E

MFR: BROWNE-MORSE CO.

Circle 357

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ONE-PART ADHESIVE

Literature describes a one-part adhesive designed to adhere to most surfaces and for use in curtain-wall construction. Technical data and application information are included. AIA FILE NO. 17-F-1

MFR: ADHESIVE PRODUCTS CORP.

Circle 358

PORCELAIN ENAMEL PANELS

Color photographs show typical applications in a new brochure on porcelain enameled panels for various types of buildings including schools, banks, motels, apartments, offices and industrial centers. Sixteen basic types of panels are shown in crosssection drawings together with specification data. (8 pp.)

AIA FILE NO. 17-A MFR: CALORIC CORP.

Circle 359

STEEL WIRE ROPE

Brochure contains specific recommendations for the use of steel wire ropes on various types of construction and in other applications. Manual also includes basic information on wire rope. Special features, including grades, cores and lays of wire ropes, preformed construction, and bethanizing are described. Fittings for these ropes are also discussed. (155 pp.)

AIA FILE NO. 36-K

MFR: BETHLEHEM STEEL CO.

Circle 360

Circle 156 for further information >

Introducing

TYPES DOORS IN ALL TYPES OF



BUILDINGS

Here's Dexter's newest, broadest lockset line . . . a durable, ruggedly built cylindrical lock produced in a full

range of functions. Includes a set for virtually every requirement-from the entrance to the storeroom doorin residences, schools, hotels, office and commercial buildings. Complete range of finishes, too. Plus a host of Dexter Lifetime features that give you quality never before available at Duralock's price.

Write for new color brochure.

Mounted displays available to Dexter dealers.

DEXTER LOCK DIVISION

Dexter Industries, Inc., Grand Rapids, Michigan IN CANADA: Dexter Lock Canada, Ltd., Galt, Ontario, IN MEXICO: Dexter Locks, Plata Elegante, S.A. de C.V. Monterrey, IN ITALY: Serrature Meroni, Milan, Italy.

of the 30's towards the increasingly sophisticated designs of today.

I.

"Mathematics is certainly not a building material nor even, properly speaking, a building technique; but the effective development of new building materials over the last one hundred and fifty years and the control of the techniques of using them has depended more and more on mathematical analysis. We are not especially concerned here with other relationships between mathematics and architecture, although it is obvious that any building or part of a building has a primary geometrical existence as a three-dimensional shape in space.

"But the mathematics of design, from the Pythagorean number-mysticism that has had recurrent support since antiquity in various different versions, to the rather naïve quasifourth-dimensional space-time concepts of certain theorists of modern architecture, is only symbolically or, as also in the Middle Ages, pragmatically related to structure. Discussion of Le Corbusier's Modulor is hardly a proper subject for this Congress.

Changes now practicable

"Changes in the application of mathematics to the analysis of structure, on the other hand, which are certainly of major importance in our situation today, do concern us here. With the use of computers calculations that once took weeks and months can now be made in a few hours. Thus the rethinking and redesigning, even of very complex mechanical systems, ceases to be impossibly expensive in terms of time and human effort.

"When we consider the extent to which the conventional uses of materials, such as steel and concrete, have hitherto been frozen in large part by the apparent economy of continuing to use established formulae—as also, of course, by building codes based on those formulae—the almost revolutionary potentialities of the increasing use of computers become obvious as a means of making possible more elastic and imaginative developments in structural techniques.

"Yet, leaving aside this very significant aspect of the application of mathematics in architecture, as well as the use of proportional formulae such as the Modulor offers for design, there is another aspect of mathematics that has been, and can still be, of deeper significance to architectural development. Although I myself have never been able fully to appreciate the effect of Wren's background in the sciences upon his architecture, there can be little question that mathematical development in the seventeenth century had a profound effect conceptually on Baroque architecture in general. Possibly, but less certainly, historians will come to agree that mathematical developments in this century have had a similarly profound effect on architectural concepts, but the question for us must still be moot.

Mathematics as a base

"What is not moot, however, is the fact that certain great innovators of the twentieth century, from Berlage on, have approached architectural problems with geometrical intuitions that lie behind their characteristic contributions both in structure and design. The conceptual core of most of Wright's many 'styles' will usually be found not 'in the nature of materials' but in some simple geometrical figure that serves like a musical theme as the germ of the whole design, both in the physical and in the visual sense.

11.

"More relevant to our subject today, and more pregnant for the immediate future, is the approach of Buckminster Fuller. Neither mathematician nor architect, and not primarily concerned with the development of particular materials, Fuller's conceptions are essentially geometrical. After decades in which his ideas were treated as those of a crank, his geodesic domes, if not his Dymaxion cars and houses, have come to wide acceptance by the most practicalminded.

"The uses that the U.S. military services and certain industrialists have made of his domes, whose structural virtue resides in their geometry and not in the exploitation of particular materials, have so far been entirely extra-architectural. Yet his power to stimulate architects has been very great and the fully architectural employment of his ideas should follow as soon as the innumerable architectural students, whom he has held enthralled for three and four-hour talks at various schools, reach professional maturity....

III.

"The usual ideals of the 20's, being so largely based on a romanticization of the machine and its products, hampered, or at least limited, the exploitation of some of the most significant new materials. The characteristics of extruded or machined metal were usually preferred in total disregard of the quite different characteristics of cast metal—indeed, those characteristics were quite frequently merely imitated in painted wood!

"Concrete construction was consistently hidden under abstract, flatpainted rendering, partly (of course) because the workmanship was usually so poor, but quite as much in pursuit of effects derived from the contemporary world of painting which were actually quite contrary in their visual implications to the real facts of structure.

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"Synthetic materials were exploited for their slickness and lack of textural interest, and older materials, far more frequently employed than was generally admitted, were either covered over with some sort of smooth surfacing or handled in a way that minimized their true nature since that was considered alien to a machine age.

Prejudices largely gone

"All this began to change in the 30's when, both in Northern Europe and in North America, wood returned to favour as the principal structural material for many types of small buildings and even as a surfacing material used in various combinations with newer materials. We have, I think, lost by now a lot of prejudices. Although the prejudices of the 20's were based on the assumed potentialities of new materials and techniques they were often, in fact, inimical to their most logical and effective exploitation.

"On the other hand, it was just as the leaders moved on towards a warmer and more emotional handling of materials, both new and old, and a bolder and more striking handling of structural techniques that the public caught up with the aspirations those leaders were leaving behind. Thus the architectural millennium, foreseen in the 20's when modern materials, modern methods and a supposedly inevitable way of expressing and exploiting them, should have be-

(Continued on page 87)

the stark romanticizing of the machine and its products, and passing by way of the more relaxed approach

Architecture and Pythagoras

Following is the third and final of

the three major papers delivered at

this summer's Congress of the In-

ternational Union of Architects, of

which the US is a member. Excerpts

from the paper by Pier Luigi Nervi

appeared in August and the paper by

J. Hryniewiecki in September. This

month A/E NEWS presents three ex-

cerpts from the address by Henry

Russell Hitchcock. Discussing archi-

tectural change caused by the emer-

gence of new techniques and ma-

terials, Hitchcock analyses the

relationships between architecture

and mathematics-particularly ge-

ometry. A second excerpt provides a

succinct appraisal of the work of

Buckminster Fuller. The third re-

views the evolution of architectural

aesthetics, beginning in the 20's with

PREVIEW: 36

JOHN HANCOCK BUILDING
JOHN HANCOCK MUTUAL LIFE INSURANCE COMPANY
SKIDMORE, OWINGS AND MERRILL
TANNER, LINSCOTT & ASSOCIATES
PAUL WEIDLINGER AND WEISKOPF & PICKWORTH
SYSKA & HENNESSY

PROJECT
OWNER
ARCHITECTS
ASSOCIATE ARCHITECTS
ASSOCIATED STRUCTURAL ENGINEERS
MECHANICAL ENGINEERS

Proof that quality design does not necessarily cost more may be found in the John Hancock Mutual Life Insurance Building currently under construction in Kansas City, Mo.

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This 7-story building—with its adjacent 5-level parking garage—is scheduled for completion early in 1962. John Hancock, who will occupy part of the ground floor only, is erecting this building as part of a conscious effort to create for the company a tangible image of quality and good taste, without at the same time putting up a building so expensive as to put the square foot rental beyond the range of most prospective tenants.

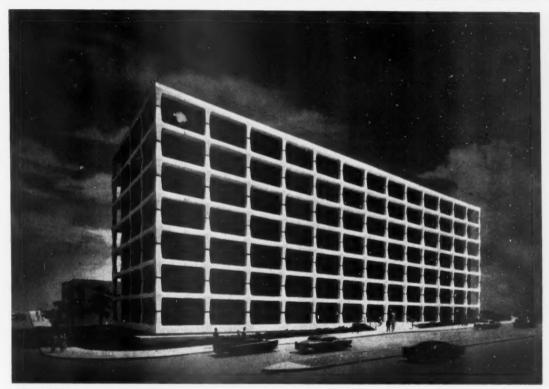
In so doing, the question of flexibility was an important one to resolve. The problem confronting the architects in this case differed from those characteristic, say, of Lever House or Union Carbide, both of which were designed as head-quarter offices for a single tenant, with known requirements for the present and well-formulated plans for the future. In such a case, it was possible to work with fairly large modules (4'-8" and 5'-0" respectively); the design preferences of the occupants-owners could be pinned down and incorporated into the general system of flexibility.

This clearly could not be done with a building whose tenants are not known, and who may change over the years. The only known tenant was the owner, and he was only to occupy half a floor.

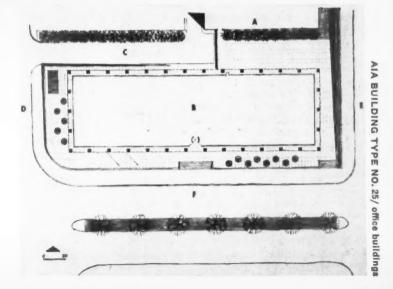
Consequently, the design had to incorporate a wider variation of possible office sizes, and the mechanical system (including lighting) had to be uniform throughout the rentable floor area. This necessarily required a smaller module (partitions can be installed every 3') and, in effect, in basically "cruder" type of flexibility than is possible for an owner occupied office building.

General design features

The new office building will be located on Country Club Plaza, about 5 miles from downtown Kansas City, on a site bordered by Summit Avenue and Madison Avenue on east and west respectively, and by 47th Street on the south (see site plan). The 270-car parking garage is to the north of the office building, and connected to it by means of a prestressed concrete bridge at the fourth floor. Principal access to the garage is off Summit Avenue, and an auxiliary entrance will be provided off Madison.



VIEW FROM southwest shows latest model of office building. Subsequent modifications include addition of trees on 47th Street divider strip (see site plan at right), and raising of the podium (see photo p. 85). Photo by Louis Checkman.



SITE PLAN

A | GARAGE

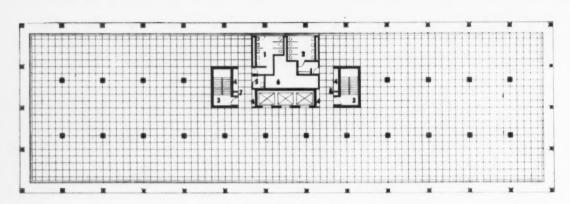
B OFFICE BUILDING

C SERVICE ROAD

D MADISON AVENUE

E SUMMIT AVENUE

47TH STREET



TYPICAL FLOOR PLAN

KEY

- 1. Men's room
- 2 Women's room
- 3 Stair
- 4 Elec. and tel. closet
- 5 Janitor's closet
- 6 Mechanical shaft
- 7 Drinking fountain
- 8 Mail chute

NOTE: One small square is equivalent to a 3' x 3' module.

The typical rentable floor (12,700 sq. ft. net per floor) is disposed about three sides of a mechanical core, which consists of two stair-wells; a shaft with the 3 elevators; electrical and telephone closets; restrooms; a mail chute; and a central mechanical shaft (see typical floor plan). In addition to the perimeter system of precast concrete structural elements (described in further detail in the structural notes which follow), the structure consists of an interior reinforced concrete column system on a 24' x 18' grid, and load-bearing reinforced concrete walls in the stairwells and elevator shaft.

The curtain wall is set back 4'-6" from the building face. This not only provides a large measure of sun-control, but also takes away from the curtain wall some of its weather resisting and aesthetic function, thus permitting a more economical type of wall. The 3' module is echoed in spacing of the mullions, permitting a very large degree of flexibility in the placing of the partitions.

Materials

Podium is surfaced with terrazzo. The garage is poured concrete with a rubbed finish. The precast concrete crosses have an etched face of a white quartz aggregate and white Portland cement. Curtain wall consists of single grey sheet glass and Spandrelite fixed in place with gaskets

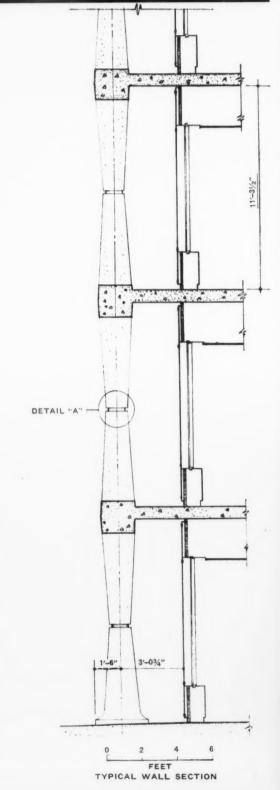
in an aluminum grid.

Engineering and construction notes

The typical floor construction consists of an 8½" flat slab supported by poured in place interior columns, core walls and precast exterior columns. The columns are spaced 18'-0" x 24'-0" on center. In order to save the cost of floor fill and finish, the ducts for the electrical system are embedded in the center of the structural slab and integrated closely with it. The specified minimum ultimate compressive strengths were as follows: poured in place concrete—3000 psi, precast concrete-6000 psi.

The precast exterior units consist of columns and spandrel beams. The columns extend from mid-story height below supported floor slab to mid-story height above. The spandrel section cantilevers ½ bay to each side of the column. The resultant cross shapes measure 18'-0" wide by 12'-0" high, and weigh approximately 9 tons. The column section varies from 16" x 16" at mid-story to 24" x 24" at the underside of the spandrel.

Vertical load transmission between precast columns is achieved by a carefully detailed pin type connection which is also capable of resisting horizontal forces. Monolithic action between the precast spandrel section and the poured in place slab is achieved by doweling to match required



Nov

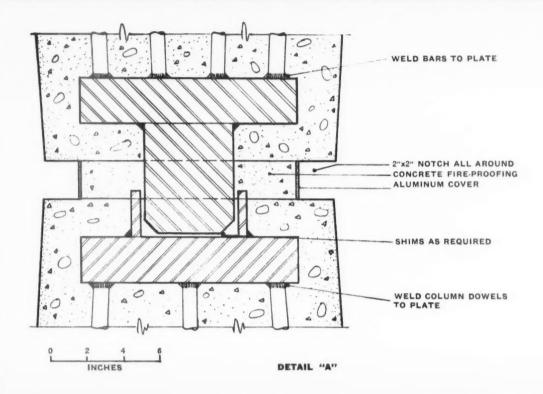
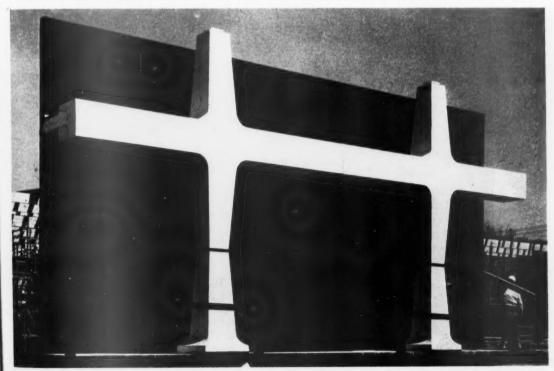


PHOTO SHOWS two typical units and two first floor units in an experimental mock-up. (Photo by Warner Studio).



moment reinforcement. Grout keys between spandrels tie the entire structure together.

After careful study, a design mix consisting of white quartz aggregate, quartz fines plus sand, and white cement was selected to satisfy both architectural and structural requirements. Concrete batches were mixed in a horizontal pantype mixer and cast with virtually no slump into steel forms. Both internal and external vibrators were used. Forms were stripped after twentyfour hours and the unit cured for four days. It was then immersed in an acid bath for etching. When the acid was brushed away, it removed the surface layer of fines and cement and exposed sparkling quartz aggregate. After etching, unit was kept under curing conditions until seven days after casting before being shipped to site. Compressive strengths at seven days averaged 5500 psi. 28-day strengths varied from 6400 psi. to over 7000 psi.

Erection of units

Erection of units has proved to be simple and rapid. After the formwork for the first supported floor was erected and reinforcing set, the 1/2 story high base units below were placed, leveled and grouted. Since all units are manufactured with an allowable tolerance of 0" to 1/8" short, the elevations of the pin seats to receive the upper shafts are measured by instrument and full plate shims added where required. Next, the typical cross unit is lifted by a crane and lowered into position on top of the base unit. Since the connection between the units is virtually self-aligning, little positioning work is required. Welded reinforcing rods are employed to brace units temporarily once they are placed. After the desired number of units is placed, the floor slab is poured and the process repeated.

The adjacent garage structure consists of a two way dome flat slab with bays spanning 26' x 27' and supported by columns and bearing walls. Designed on the continuous ramp principle it provides 5 full levels of parking and is designed to support two future levels.

A precast prestressed concrete bridge will connect the two buildings. Twenty-two inches deep and 9'-0" wide, it will span 38' between supports and cantilever 6'. The depth of bridge slab was set to match that of the supporting spandrel. The same 6000 psi mix used in the office building is employed here. To facilitate erection, the bridge slab will be cast in three 3' wide sections containing hollow tubes and, once erected, will be held together by grout keys and through-bolts.

Mechanical notes

The entire building is heated and cooled by allair systems.

The perimeter of the building is served by one

PREVIEW: 36

multi-zone air handling unit with individual zones for each of the four exposures. Air is distributed to the conditioned space through medium velocity supply ducts and passes through combination sound attenuator and manual volume control box units located at the sill under the windows.

Interior areas are served by a single dual-duct type air handling unit with individual mixing boxes at each floor. Both the primary and secondary dual ducts are designed for medium velocities of air, which enters the conditioned space through attenuator units similar to those of the perimeter system, but designed for ceiling mounting with ceiling diffusers.

Both the interior and perimeter systems have been designed for provision to introduce 100 per cent outside air, so that the building may be cooled during the intermediate season without the necessity of operating the refrigeration plant. The air handling systems are unique in that only two air supply units are installed to handle the entire rentable area from the 2nd through the 6th floors. Separate units are provided for the 1st floor which is to be occupied by the owner.

Chilled water for the building is generated by means of a steam absorption type refrigeration machine obtaining steam from low pressure gas fired package type steam generators. Oil standby is provided since, for reasons of economy, gas is purchased on an interruptible basis.

In order to eliminate an unsightly roof condition, the cooling tower is located in the adjacent garage at grade level.

Electrical notes

Electric distribution operates on a 120/208V 3 phase 4 wire system. Vertical distribution utilizes two 1000 ampere aluminum plug-in type busways in separate electric closets.

Wiring for convenience outlets is distributed in fiber underfloor ducts, spaced 6' on centers, for 120V and telephone requirements. The ducts are placed directly in the structural slab with preset inserts 24" on centers. In addition to telephone spaces in electric closets, telephone cabinets are built into the air conditioning enclosures along the periphery of each floor.

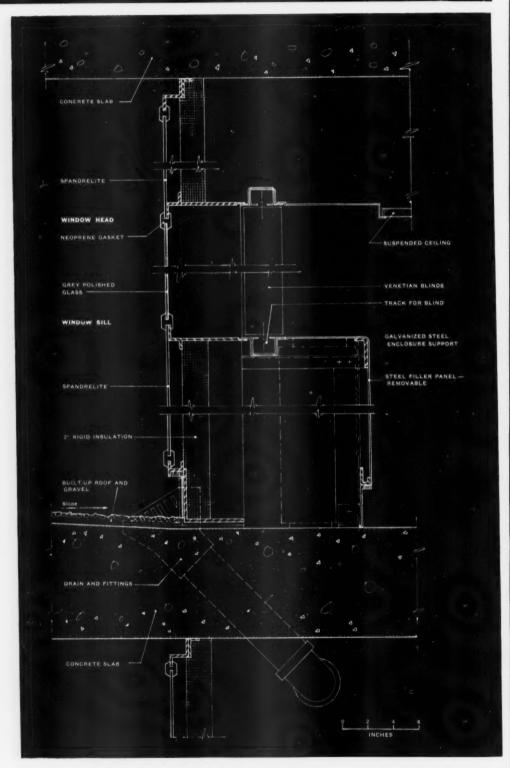
The basic lighting system has a modular layout and consists of 3 lamp 1' x 4' fluorescent troffers providing 70 footcandles of illumination. Adjustments can be made to suit particular requirements of individual tenants.

Elevators

There will be three elevators, each with a capacity of 3500 lbs and a speed of 350' per minute. They will be of the gearless automatic type.

Cost

Precise figures are not available at this time.



DETAIL DRAWING shows relationship between recessed curtain wall and structural frame of building.

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ABSTRACTS

(Continued from page 83)

come universal, has never quite come into being. Of course, humanly speaking, it was naïve to suppose that it could....

"The second quarter of the twentieth century achieved a new architecture not, as was widely supposed at the time, as the inevitable result of the acceptance of new physical conditions, but by the imposition partly conscious, partly unconscious, of a particular style.

"Now, with our more subtle and sophisticated approach to materials and the methods of their use, we might hope in time to arrive at a rather different and richer style, somewhat as the Baroque came into being, after the confusions of the later sixteenth century, as the broader and more elastic successor of the rigid and doctrinaire Renaissance of 1500."

Hagiolatry and architecture

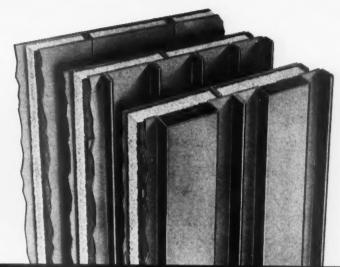
A thought-provoking (and possibly subjective) comparison of architecture and architects in the US and Canada formed part of an address delivered at the recent Industrial Building Congress held in New York. The speaker, John C. Parkin, FRAIC and FRIBA, is partner in charge of design in the architectural firm of John B. Parkin Associates, of Toronto.

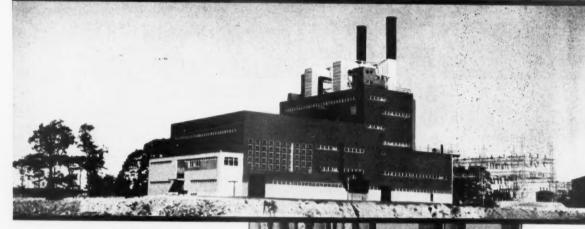
"A casual look at the American industrial architectural scene would give one the impression that industrial buildings in the United States and Canada are the same-but with a difference.' On closer analysis it becomes clear that whatever differences do exist between the industrial architecture of Canada and that of the United States stem as much from a difference in cultural aspirations as from technical disparities. Common origin, language and cultural ancestry might lead to the false assumption that Canadian culture, with architecture as one of its most important manifestations, would be identical with that of the United States. It is important, I think, for you to realize that differences do exist, and to know what they are.

Don't take ourselves seriously

"Canadians appear on the whole as a sober people, but as expatriate-Canadian John Kenneth Galbraith

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ABSTRACTS

(Continued from page 87)

has pointed out in his recent book. 'The Liberal Hour' we are, underneath, a nation who do not take ourselves too seriously. For this reason, perhaps, our pursuits often differ from the American's. Virtuosity, for its own sake-the relentless search for innovation-and the 'star system' have little place in our culture. or in our architecture. To paraphrase another well-known Canadian. Stephen Leacock, we have not mounted an architectural horse and gone riding off in all directions. Our course has been fairly straight and perhaps somewhat narrow.

"There are few heroes of any kind in Canada-we tolerate few of our own and we are bemused by most of those from elsewhere. Certainly we have no national architectural heroes. and relatively few of the international variety. We do not indulge in the blind hagiolatry so often attendant to the world's architectural saints.

It is no mere co-incidence that the one person who has exerted the greatest single influence on architecture in Canada today is Mies van der Rohe. For two or three reasons, I would say, this is so. First, because his 'internationalist' background has particular appeal in a nation of multilateral interests; secondly, because his no-nonsense vernacular is especially appropriate in a country of nononsense budgets; and, finally, because the very anonymity of his style has its own special appeal to many of us. . . ."

The "home-made" building code

How obsolete building codes influence public and professional opinion in general, and construction costs in particular, was discussed in a speech by Theodore H. Anderson, chief building inspector of Greenwich, Conn., before the Building Officials' Conference of America.

"There are still many hand-made or 'home grown' tools in the form of building codes being used in the country today. The press and magazines in recent years have made much, and perhaps rightly so, of 'the thousands of dollars wasted by obsolete building codes.' Dramatic, to say the least, are some of the instances cited. You have read them as have I. Drum traps prohibited in some places while being required in others, copper waste vent and water lines prohibited or required or permitted depending on location, plywood sheathing and structural elements prohibited, prefabrication prohibited, house roof trusses prohibited.

"In one state of which I have personal knowledge, one half of the state prohibits fabric covered cable for house wiring while requiring B-X, and the other half of the state prohibits B-X while requiring fabric covered unless in conduit. I believe the classic situation is that of two adjoining towns in an eastern state served by the same water system and reservoir, where one town permitted and one town prohibited copper water pipe.

"Home grown" codes costly

"These are extremes and easily written about by the layman. They are the exceptions rising out of local prejudices and special interest influence. But in the hard core of building code application there are still too many less obvious areas where local obsolete 'home grown' codes written in the last decade do add unnecessarily to construction costs....

"For many years and until recently it was common practice for each local community to draft its own building code, using volunteer architects, engineers and other local talent. This almost invariably resulted in an independent code frequently patterned after or using parts of codes from other communities. These codes specified materials and methods known to their drafters from experience to be sound, but often resulted in requiring much greater strength, fire protection or sanitation than necessary for safety and ignoring the newer technological advances.

"The combination of portions of several codes frequently produced conflicting and confusing requirements. The short-comings and restrictive character of such codes and their failure to keep abreast of proven new materials and methods have been responsible for such public resentment against regulation of private property rights and inflated costs. . . ."

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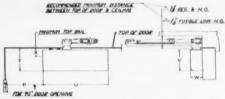
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Norton's 7000W closer covered with cherry wood to match the wood of door and room. This is at Christ Community Hospital, Oak Lawn, Illinois. Architect: Burnham & Hammond.



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MAX. DOOR SIZE WOOD OR METAL		CATALOG NUMBER OF CLOSER RECOMMENDED*									APPROX.	
INTERIOR EXTERIOR					P	T	U	V	W	X	WEIGHT	
	IN- SWING	OUT. SWING	REGULAR ARM	90" TO 180" REG. H.A.	90 TO 135" REG. F.L.H.A.							(LBS.)
2'-6"			7002	7002-H	7002-FL	61/4	3	8%	21/4	11/4	1	6
3'-0"			7003	7003-H	7003-FL	61/4	3	81/8	21/4	1%	1	6
3'-6"	22.	2'-6"	7003-M	7003-MH	7003-MFL	61/4	313/16	131/0	31/4	115/16	11/4	8
4'-0"	2"-8"	3'-0"	7004	7004 H	7004-FL	61/4	313/16	131/6	31/4	115/16	11/4	81/2
4'.6"	3'-2"	3'-6"	7005	7005-H	7005-Ft	61/4	313/16	131/8	31/4	115/16	11/4	81/2

^{*}Add suffix "W" for wood covers and suffix "A" for anodized covers.

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Successful bidder is requested to have a factory representative inspect and properly adjust each closer at completion of job. Closer to be Norton Series 7000 (7000W, 7000A), P-7000 (P-7000W, P-7000A), or equivalent.



SERIES No. P-7000 PARALLEL ARM

MAX. DOOR SIZE WOOD OR METAL		CATALOG NUMBER OF CLOSER RECOMMENDED*									APPROX.
INTERIOR	OUT- SWING	PARALLEL	90° TO 180° PAR. H.A.	90° TO 180° PAR. F.L.H.A.	P	T	U	٧	W	Х	WEIGHT (LBS)
2'-6"		P-7002	P-7002-H	P-7002-FL	73/4	51/8	81/8	21/4	1%	3	6
2'-8"		P-7003	P-7003-H	P-7003-FL	71/4	51/8	8%	21/4	1%	3	6
3'.0"	2'-4"	P-7003-M	P-7003-MH	P-7003-MFL	51/4	51/8	131/0	31/4	115/16	31/4	8
3'-6"	2'-8"	P-7004	P-7004-H	P-7004-FL	51/4	51/6	131/0	31/4	115/16	31/4	81/2
4'-0"	3'.0"	P-7005	P-7005-H	P 7005-FL	51/4	51/8	131/6	31/4	115/16	31/4	81/2

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DOCUMENTS

The documents listed below are available through the associations and agencies cited. All requests should be directed accordingly.

Iowa State University, Ames, Iowa.

Hyperbolic Paraboloidal Umbrella Shells, by A. E. Burton and H. P. Harrenstein. March 1961. 20pp. 75¢. Engineering Report 33 of the Iowa Engineering Experiment Station, this booklet covers the construction of hyperbolic paraboloidal umbrella shells and hyperbolic paraboloidal umbrella shells under vertical stress. It is liberally illustrated with photographs and graphs, collected from experiments in building and load-testing at the station.

Stress Distribution in Hyperbolic Paraboloidal Shells under Concentrated Loads, by H. P. Harrenstein and Gungor Tascioglu. March 1961. 29pp. \$1.50.

The booklet, bulletin 197 of the Iowa Engineering Experiment Station, includes, in addition to 60 tables showing load testing results, a review of previous work done and a description of testing procedure. There are also numerous photographs and drawings showing the shells used in the tests and testing apparatus.

West Coast Lumbermen's Association, 1410 S.W. Morrison Street, Portland 5, Oregon.

Douglas Fir Use Book, revised edition, Oct. 1961. 326 pp. \$5.00.

The 1961 edition contains new chapters on hyperbolic-paraboloid shells and wood tanks and pipe. Other revisions include a change in the allowable loads for timber connectors.

The revision will be available to owners of the 1958 edition at no charge, early in 1962.

The Modular Society, Ltd., 22 Buckingham Street, London W.C. 2, England.

The Modular Quarterly, Yearly subscription—\$3.00.

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(Continued on page 98)

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BOOKS

Landscape Architecture by John Ormsbee Simonds. New York: F. W. Dodge, 1961. 244 pp., illus. \$12.75.

by Dan Kiley AIA*

"That the school of Shen-hsui could not survive as a branch of Zen was natural enough for Zen could not be anything else but an instantaneous act of intuition. As it opens up all of a sudden a world hitherto undreamed of, it is an abrupt and discrete leaping from one plane of thought to another. Haut missed the ultimate object of Zen when he em-

phasized the *process* to reach the end. As a practical adviser he was excellent and full of merit." (from Essays in Buddhism, by D. T. Suzuki.)

This is not to say that John Ormsbee Simonds has missed the point altogether. He is surely on the right track when he says that it is not form we are seeking; but is he correct when he says we are seeking a new philosophy of planning? According to him he coursed all over the world seeking it:" . . . talked with taper fingered artists, . . . carpenters and ring bedecked princes . asked himself what would Christ, Repton or Kublai do with this (problem). He searched for "timeless landscape principles" which, if not "philosophy, would serve as a standard of measure or critical guide." A Zen master would have slapped him sharply for his efforts.

My point is that you cannot find design in the abstract, in principles, or checklists (with which the book abounds). Nor can you find it in other cultures, or in nature, or by way of a Master. You can observe, study, appreciate and delight in all the great works of the past, East and West, in all fields, and by this possibly become broad, cultured and aware. But it cannot supply the one

missing element.

Nonetheless, this book should be of great value to the student, layman, and professional as a point of departure for more incursive study in the field of landscape architecture.

The First Book of Architecture by Lamont Moore. New York: Franklin Watts, 1961, 82 pp., ill, \$1,95.

This beautiful little book presents architecture to the beginner, which means, of course, both to the person who has never looked at architecture as an art and to those who have spent their lives designing buildings. Mr. Moore is careful not to say too much, so that he does not confuse the delight of watching buildings with the weary practice of talking about them philosophically. He points to 5 types of buildings: for worship, for living, for earning, for governing, and for pleasure and learning, and in direct and useful terms he mentions some considerations which underlie their structure and their beauty. This is straight shooting, often right at the heart of architectural form and at a time when few people can recognize a building behind the complex aestheticism which is the basis

*Mr. Kiley is a well-known site and landscape consultant.

of most building talk today. The short story which Mr. Moore tells ends with an exciting stroll around Piazza San Marco, which is a very nice way to end a book.

Ralph R. Drury AIA Assistant Professor of Architecture Carnegie Institute of Technology

Architecture Today and Tomorrow by Cranston Jones. New York: Mc-Graw-Hill, 1961. 248 pp., ill. \$17.50.

This architectural picture book is aimed not solely at an architectural readership, but also at those who are, possibly, in a better position to afford its purchase price, that is to say investors, contractors, potential owners and, through the libraries, students.

Architecture today and tomorrow reviews modern architecture through its key protagonists, not a new approach by any means, but carried through, this time, with much depth, breadth and authority. Judging from the contents, the author, a senior editor with *Time* magazine, indulged in a great deal of personal research, involving, particularly, conversations with most of the major figures of the modern movement.

The book classifies these figures into three categories: 1) the Formgivers. This group of architects by dint of long association in categories of this kind, ought, perhaps, to be known as "the Seven" (Sullivan, Wright, Gropius, Mies, Le Corbusier, Perret and Aalto); 2) the exponents of "Modern in transition"; and 3) the exponents of "Structure in space," comprising Maillart, Torroja, Candela, Nervi and Bucky Fuller, another familiar grouping.

There is much that is interesting in the analysis of each of the major figures, in terms of interpretation of his work and in terms of what, personally, "make him tick." The photographs are plentiful, and for the most part new and unfamiliar as to angle; their quality is good, if somewhat lacking in contrast here and there, at least in this reviewer's copy. The color reproduction, on the other hand, particularly in examples having large areas of green, is less satisfactory.

This book should be valuable to the layman seeking a comprehensive picture of modern architecture; and to the professional in search of a perspective view of the architecture of

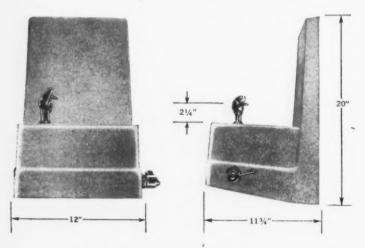
(Continued on page 95)



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DIGEST: 35

USING COLOR ANODIZED PANELS: SOME HINTS TO DESIGNERS

Anodizing can be applied to aluminum and to every one of its alloys. DIGEST this month examines types and colors of anodizing, and presents a series of data on recommended maximum panel dimensions, methods of reducing the visual effects of any slight variations in color uniformity, and suggestions on jointing. The article is adapted from a paper prepared for delivery at the last series of BRI conferences in Washington, The author is associated with the Alumiline Corpora-

by Raiph E. Andrews

The hard, corrosion resistant anodic coating normally developed on architectural aluminum alloys is clear and transparent. Colors can be developed in the anodic coating in two basic ways, known as types:

Type I. Absorption of dyes into the anodic film.

Type II. Developing color during anodizing through a choice of alloy and anodizing conditions.

The Type I Colors can be subdivided into two subclasses:

IA-Organic colors (all colors except architectural gold). Although some colors like red, copper, blue and black have good light fastness, their use is limited to situations not requiring a life expectancy of over 10 or 15 years.

IB-Inorganic colors like ferric ammonium oxylate, used to make gold colors; this is indefinitely stable.

The Type II Colors are all very stable and can be used in applications requiring over 10 to 15 years of life. This group can be classified under three basic commercially available types:

IIA-Alcoa #20, #30, #40 Anoclad Alloys which develop shades of grey to black.

IIB—Alcoa Duronodic finishes which develop shades of grey, brown and black.

IIC-Kaiser Kalcolor finishes which develop shades of grey, brown and black.

Color designations

Type I colors:

1 A minimum anodic film thickness of 0.0008".

2 A specific use of ferric ammonium oxylate as dye substance for gold color.

Tupe II colors:

Follow procedure specified by process licensors (Aluminum Company of American, Kaiser Aluminum Company).

Mechanical finishing

Since mechanical finishes applied to surfaces will affect the color appearance, it is important to specify clearly mechanical pretreatment on aluminum materials. These finishes are either buffing, belt sanding, or mill finish. Some manufacturers normally provide a buffed pretreatment without caustic etch. This procedure, although more difficult, provides a very lustrous surface which differs considerably in appearance from the normal buffed and etched pretreatment.

Where materials are supplied by more than one manufacturer, the architect should be sure that each is working with the same finished sample.

Color variation

It is important to recognize that there will be color variations from one aluminum section to another. Extrusions will appear different from sheets. Qualified architectural manufacturers will maintain sufficiently good color controls so that, in a majority of applications of extruded sections, color variations will not be objectionable. Where extrusions and sheets are used in spandrel areas, or as fascias, color variations become more noticeable. Figures indicate correct and incorrect methods of separating anodized colors where large expanses are involved. The technique recommended is to break up the color field so as to detract attention from color variations that are normally present.

Recommendations

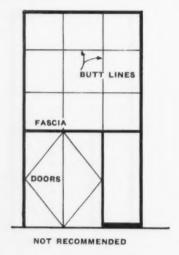
Analysis of data and information received from this company's research, production, and sales departments, from distributors and from experience received in the field, has provided the following recommendations for the proper design of aluminum building fascia and panel assemblies.

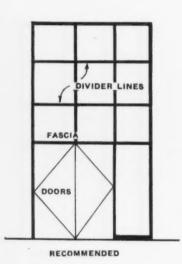
Because of the "transparent" nature of all color coatings (except black) and because of the nature of the processes themselves, there are minor variations from extrusion to extrusion and from sheet to sheet in any group of materials. This minor color variation should be recognized as an inherent property of all color materials. Under almost all sash, sill, division bar, door, door frame, and window installation conditions, these minor color variations are difficult to detect. However, in large color expanses on multiple extrusion fascia or building sheet panel expanses, these small color differentials can become accentuated through improper

Small color differentials are difficult to notice under the following circumstances:

- 1 In short lengths of extrusions.
- 2 In small sheet sizes.
- 3 When materials are being compared on different
- 4 When materials are being compared on different planes.
- 5 When materials are being compared at different angles.
- 6 When adjacent pieces are separated by a physical space. 7 When adjacent pieces are separated by a divider

The space or divider breaks up the continuity of the





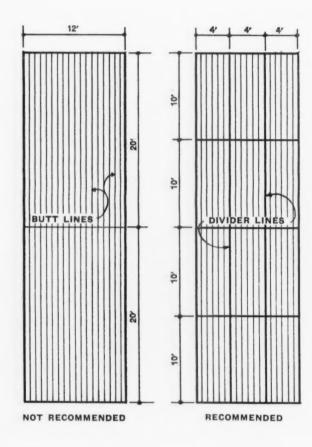


FIGURE 1

FIGURE 2

color field, and the eye has difficulty "jumping" this discontinuity.

On the basis of the above observations and reports, the following specific design practices are recommended:

1 Color sheets should not be butted together without divider strips between adjacent sheets. If the divider is of the same color as the sheet material, it should be in a different plane. If the divider is of a different color, it may be in the same plane as the sheet material (See fig. 1).

2 Colored extrusions of the same shape should not be butted together into panels more than 4' wide, or into panels made up of more than eight extrusions butted side by side. Each panel should be separated by a divider strip (See fig. 2).

3 Colored extrusions should not be butted end to end

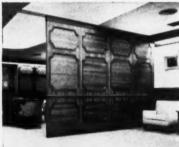
without a divider strip between the butt lines. If possible, extrusion panels should be designed to a maximum height of 10' (See fig. 2).

4 Colored extrusions may be butted side by side into panels containing more than eight extrusions side by side, or more than 4' in width, if there is a distinct change in contour, plane, or angle between butting extrusions.

5 In general, sheet or extrusion panels should not exceed overall dimensions of 4' x 10', and divider strips should be placed between each panel area.

6 If possible, all panels, whether sheet or extrusion, should be prematched and labeled at the finishing factory. An elevation of the building, showing the size, location, and relative position of each panel, should be submitted to the finishing factory for each particular job.





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Architectural & Engineering News

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BOOKS

(Continued from page 92)

to-day; though not, perhaps, as the title implies, of the architecture of tomorrow. SAK

Office buildings by the Editors of Architectural Record. New York: F. W. Dodge, 1961. 256 pp., ill. \$9.75.

A collection of office buildings previously published in the pages of Architectural Record. Divided into three sections: high-rise buildings, low-rise buildings, and engineering, of which the last should be particularly useful to the architect as a design tool. Photos of each building shown accompanied by plans, sections and details.

A useful visual record of accomplished office buildings.

Protective Construction in a Nuclear Age, edited by J. J. O'Sullivan. New York: The Macmillan Company, 1961. Two volumes. 886 pp. illustrated \$50.00.

These two hard-bound volumes constitute a report of the proceedings of the Second Protective Construction Symposium, sponsored by the Rand Corporation in Santa Monica, California, in March 1959.

The purpose of the conference was to familiarize military and civilian architects and engineers with the newest developments in protective construction, so that they might be more aware of the problems involved and the solutions available.

In the volumes are the important papers presented at the meeting, edited by J. J. O'Sullivan, chairman of the symposium. The author of each of the papers is considered a specialist in some area of engineering, design, or construction.

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Among the topics considered are weapons effects; site selection as it effects design and cost; protection of exposed items, such as access and ventilation openings; problems of communication; craters and shock waves in rock; tunnel shapes, sizes and failures; design of underground facilities; utility problems and design; examples of underground construction; and new construction methods and equipment.

The volumes are well illustrated with photographs and drawings of actual situations related to the topics discussed.

(Continued on page 96)



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BOOKS

(Continued from page 95)

New Building Research, Fall 1960.

Washington D.C.: National Academy of Sciences, National Research Council, 1961. 89 pp. \$6.00.

The book represents the proceeding of a conference held as a part of the 1960 Fall Conferences of the Building Research Institute, Division of Engineering and Industrial Research.

The book includes abstracts of conference papers, reports of suggested new studies, and reports on new projects.

The suggested studies noted are FHA's view of needed new building research by industry; problems of procedures and methodology in the evaluation of building materials and structures; needed research on the effect of buildings on human behavior; and the need for social science research in the home building field.

New projects reported the wind resistance of asphalt shingle roofing; design of schools to incorporate fallout protection; design of buildings to permit their use by the physically handicapped; and recent advances in the incineration of household wastes.

Reports on new projects are accompanied by illustrations of work being done in these areas.

Mechanical Fasteners for Industrial Curtain Walls. Washington D.C.: National Academy of Sciences—National Research Council, 1961. 24 pp. \$3.00.

A report of a workshop-conference held as part of the 1960 Fall Conferences of the Building Research Institute, Division of Engineering and Industrial Research.

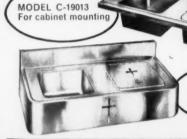
It covers definitions, nomenclature, and classification; design criteria for field assembled curtain walls; goals for fastener specifications and standards; appearance and durability requirements; and installation practices and fastening techniques.

Preassembled Building Components. Washington D.C.: National Academy of Sciences—National Research Council, 1961. 178 pp. \$8.00. The proceedings of a program conducted as a part of the 1960 Fall Conferences of the Building Research Institute, Division of Engi-



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BOOKS

(Continued from page 96)

neering and Industrial Research.

The illustrated volume includes reports on the attitudes on preassembled components; principles of preassembled component construction; structural component case studies; and mechanical component case studies.

Factors That Influence Field Compaction of Soils by A. W. Johnson and J. R. Sallberg. Washington D.C.: National Academy of Sciences—National Research Council, 1961. 206 pp. \$4.00.

Design of Welded Structural Connections by Omer W. Blodgett and John B. Scalzi. Cleveland: Lincoln Arc Welding Foundation, 1961. 92 pp. \$1.00.

In addition to chapters covering ordinary procedures, this well illustrated book contains a chapter on plastic design, as well as chapters on erection and welding connections for steel framing joined to existing structures.

Transverse Vibration Theory by Demeter G. Fertis and Edward G. Zobel. New York: The Ronald Press Company, 1961. 301 pp. \$10.00.

Background material on the classical and better known approaches to vibration problems and a review of structural aspects are covered in the first part of the book. Then the authors' new method of "equivalent systems" is developed, leading to the "dynamic hinge" concept, which permits a portion of a structure to be isolated and used to determine the fundamental frequency of vibration.

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The book is thoroughly illustrated with charts, graphs, and tables.

Industrial Instrumentation by Forrest C. Tyson, Jr., Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1961. 365 pp. \$9.00.

The book is designed specifically for the technician concerned with installing, maintaining, and altering instruments. The author treats the mechanisms of measurement, control, and remote control, or telemetering, at a level designed to give the technician all the background and information prerequisite to handling the instruments commonly used in industry today.

While the book describes differences between instruments made by competing manufacturers, it deals primarily with fundamental similarities among the various makes of instruments.

The major topics presented include: pressure, recorders, flow, liquid level, temperature, humidity, control, control valves, transmitters, blind controllers, miniature recorders and graphic panels. Each chapter concludes with a summary plus a problem and answer section for self-testing.

Standard on Sprinkler Systems.
Boston: National Fire Protection
Association, 60 Batterymarch Street.
1961, 160 pp. \$1.25.

The newly revised 1961 edition of the standard for the installation of sprinkler systems incorporates a substantial number of changes from earlier editions. Among them are provisions for extended spacing of sprinklers in ordinary hazard occupancies, regardless of type of construction. Similar extended spacing is also allowed in some light and extra hazard occupancies.

Building Exits Code. Boston: National Fire Protection Association, 1961. 256 pp. \$1.50.

Concerns the safeguarding of life from fire and panic. Deals with, in addition to exits, fire drills, exit lighting, signs and related subjects. Changes in the 1961 edition include new requirements for hospitals, nursing homes, and nurseries. Also included are several new features on safety in schools.

Metals Handbook: Properties and Selection of Metals. Novelty, Ohio: American Society for Metals, 1961. 1,300 pp. \$30.00.

Eighth edition of the standard reference work for engineers, containing technical data on ferrous and non-ferrous metals and their alloys.

Engineering Management and Administration by Val Cronstedt. New York: McGraw-Hill Book Company, 1961. 345 pp. \$8.50.

The book tells those who have need of such information how to manage and administer an engineering department. Each chapter deals with a specific administrative subject. Formalized policies and procedures are included in appendixes.

Topics covered in the book include structure of an engineering organization and preparation of organization charts, engineering orders and supplemental orders, maintenance of records, administration of budgets and financial data, compensation administration, and preparation of engineering proposals.

Key to Smoley's. Ormond Beach, Fla.: George F. Wolters, P.O. Box 475. 80 pp. \$1.50.

Gives graphic examples and solutions and their respective application to C. K. Smoley's engineering tables.

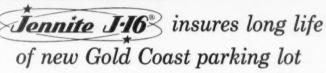
The practice of Consulting Engineering: A Manual of Principles and Performance—Second edition. Springfield, Ill.: Consulting Engineers Council, 1961. \$15.00.

Influence Lines for Plane and Three-Dimensional Continuous Structures by Samuel Chamecki. New York: Frederick Unger Publishing Company, 1961. 85 pp. \$4.50.

The Impact of the Professional Engineering Union by Richard E. Walton. Boston Harvard University, 1961, 419 pp. \$5.00.



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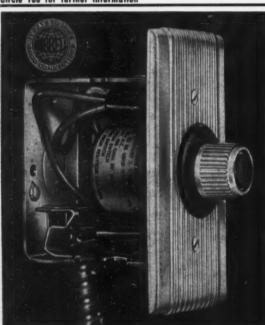
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DOCUMENTS

(Continued from page 91)

American Academy of Arts and Sciences

Records of the American Academy of Arts and Sciences, August, 1961. \$2.30 each; \$5.00 for three years.

Published once a year, the volume contains the lists of officers and committees, members, the Statutes, and the records of meetings of the American Academy of Arts and Sciences.

The National Electrical Manufacturers Association, 155 East 44th Street, New York 17, N.Y. (Minimum order—\$1.00.)

WD 1-1961 American Standard Outlet Receptacles, Attachment Plug Caps, and Appliance Plugs. August 1961. \$1.50.

Deals with configurations and dimensions of 125 volt, 125/250-volt, 250 volt, 277-volt midget-locking and locking-type caps and receptacles, and appliance plugs and receptacles.

Office of Civil Defense, Department of Defense, Pentagon, Washington 25, D.C.

Steel Shelters for Fallout Protection, prepared by the American Iron and Steel Institute and the Office of Civil Defense. August, 1961. 6 pp. On request.

The booklet outlines the requirements for an adequate fallout shelter. Includes information on shielding, size, location, entrance, ventilation, and lighting. Also outlines the reported advantages of steel structures.

Better Light Better Sight Bureau 750 Third Avenue, New York 17, N.Y.

Lighting for Industry, July, 1961. 16~pp. 25ϕ .

Addressed chiefly to plant executives but also designed for architects and engineers, it explains what's behind the new higher lighting levels recommended for industry. Included are the new recommended foot candle levels; explanation of research on the problem at the University of Michigan; discussion of quality factors; discussion of the specific benefits of proper lighting; and 10 illustrated "case histories."

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NAMES

PAUL THIRY, FAIA. There was a time not so long ago when any statement smacking even remotely of respect for historical architecture was viewed with distrust and a large measure of condescension. Modern architecture having but recently gained the upper hand, it suffered from a certain diffidence which it expressed through exaggerated attitudes: historical styles were black, evil, amoral, useless.

As modern architecture gained confidence, its attitude towards the historic styles became more tolerant, on the premise that in the course of its 3500 years of history, architecture must surely have learned a trick or two.

This is the feeling of Paul Thiry. Not that he advocates a return to "traditional." On the contrary, he was the first to advance the cause of modern architecture in the Northwest, a single handed battle in the beginning. But, he maintains, "knowledge of the merits and demerits of historic architecture fortifies us in our approach to new problems." Also, by casually alluding to the fact that columns, lintels and ornament were prefabricated by the Greeks, he places the whole concept of prefabrication in a broader perspective.

A sense of realism, a feeling for the practical and a healthy respect for Nature's elements are perhaps the basic points of Paul Thiry's approach to architecture. Thus, he subscribes to the modern credo that function is inseparable from beauty, but insists that this belief be actually carried out; he regrets "recent whimsy," "lace-curtain architecture, devoid of respect for place or direction, a direct throwback to pinnacles, encrustation, leaks and dirt."

Thiry explains this phenomenon by saying that many of the designers of this sort of architecture were at school at a time when history of architecture was either played down or ignored altogether; so that when they travel abroad and see the wonders of historical architecture for the first time, they are so overwhelmed by it all that they are moved to "borrow" it without proper evaluation: thus running the risk, according to Thiry, of the same bad habits of applied ornament which helped to bring down traditional architecture in the first place.

Thiry's regard for Nature seems a logical outgrowth of his Far Western background. Born in Nome, Alaska, he made eleven trips between Nome and Seattle before he was six; was in San Francisco during the earthquake; and drifted at sea for a week in an Arctic storm. Graduated from high school at 15, he entered college as a pre-med major, but switched to architecture after two years, due partly, he says, to "convincing hot spring weather in a cat anatomy lab." He graduated from the University of Washington in 1928 after a year abroad, which included time spent in the American School at Fontainebleau.

He opened his own office on completing college (this must be something of a record) with a commission to do an apartment building on the Seattle lakefront, and has been in private practice since that time. Early work consisted for the most part of apartments and some residential work, and several experimental houses based on wood, prefabrication and movable structures.

These were depression years, and when work became slack, Thiry, rather than "spend savings doing nothing," took a year-long trip around the world, working occasionally along the way. The trip took him by way of Japan, China and India to Egypt, Europe, Central America and home via the Panama Canal.

When World War II broke out Thiry became involved in the design of several large scale housing and military projects, among them a 25,000 person community at Port Orchard, Washington and a Naval Advanced Base Depot at Tacoma.

Since the war Thiry has developed a varied practice, without particular emphasis on any one building type. He has at the same time been active on a community plane, serving as member of the Seattle Planning Commission



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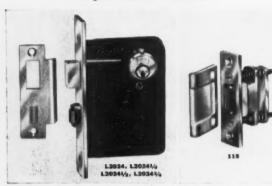
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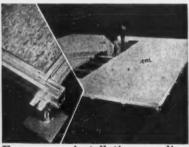
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from 1952 until this year, when he resigned in protest over plans for a new freeway. He was on the executive committee of the Puget Sound regional planning council between 1954 and 1957; and is at present an advisory committee member of the Washington State Joint Committee on urban area government.

Current architectural projects include several churches-together with H. Kamphoefner and R. Bennett he has published a book on churchesas well as a number of banks and dormitories. He is also architect for the US Embassy residence in Santiago de

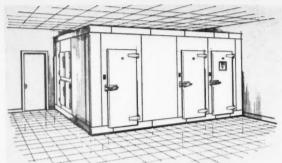
Thiry and Century 21

His chief preoccupation, at present, is his role as primary architect for the Century 21 Exposition and World's Fair. This Fair promises to furnish the most invigorating display of forward looking architecture since the Paris Fair of 1889, and there is no serious competition in evidence. Thiry's job as primary architect includes site planning (including mechanical, electrical, landscaping), and advisory coordination of the work of participating architects and exhibitors. He is also the architect of the Coliseum building and of 9 of the international exhibition buildings: plus two or three additional structures destined for the exposition grounds.

Modern building technology has always been an important focus for Thiry's thinking on architecture. "Ideas in fabrication," he says, "which may have been born 30 or 40 years ago and which could not be accomplished due to the inability to lift or transport, are easy and feasible to-day"; adding that "techniques in handling must be manifest in construction . . . Architecture must take the form dictated by cables, precasting, guniting, prestressing or air-support."

Thiry's views on the profession advocate strong individual initiative and direction; he opposes corporate practice and "so-called team effort, (which) too often results in nobody pulling a full load." He also regrets the tendency to "judge an architect by his volume of business or (size of) organization."

These days, when newness, as such, is given more than its due share of attention, it is exceptional to have a Thiry make the point that "architecture needs both leaders and followers. Without these extremes we breed an irresponsible architecture."



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EDITORIAL

THE MUSHROOM CLOUD. Whether everyone is to have a shelter or not is a political question and a moral one. How to build a shelter is a question of design and construction. The architect, as a human being, has a deep interest in the moral and political aspects. But as a professional he is interested in knowing only three things: 1 how to choose materials for a shelter so as to make it resistant to given quantities of radiation, blast force and heat, 2 what these quantities are for a given amount of explosive and a given distance from the site of the detonation and 3 how long it takes radiation to subside to safe levels. These are the basic design tools required to solve a specific problem. They should be made available in clear, unmistakable terms by the Federal government, so that, should a client desire a fall-out shelter, the architect can render a satisfactory professional service and design one for him.

The moral and political problems remain; but they should not be allowed to obscure what is basically, from a professional standpoint, merely another design problem.

A CASE FOR UNIFIED PRODUCT TESTING AND REPORTING. The variety of building products which industry makes available to the architect today has become such as to make judicious selection increasingly complicated. While the standardizing of building products has now become the rule as to dimension and even as to component parts, there has been relatively little adherence by industry to standardized testing procedures, which would enable architects and engineers to pick and choose among like products on the basis of a common denominator.

Such tests exist. The American Society for Testing and Materials has worked out closely detailed testing procedures; the American Standards Association has established standards of performance. Both groups cover many types of building materials, and are working on others.

The advantages of a unified system for product testing to which the whole building industry would subscribe are substantial, not only in simplifying product comparisons, but also, for example, in buttressing the status of performance type building codes.

As an instance, let us take the recurring question of sound transmission loss. It is often hard to tell from available data whether or not a rating of 35 db for product X was derived from testing at a single frequency or represents the average of tests at several frequencies; whether the figure was based on the existence of a door, or several doors, or no door at all; whether such doors were weatherstripped, and if so, how; and in what manner several units of said product were joined during the test to each other and to wall, ceiling and floor.

It will be objected that any such unified system of testing would become very cumbersome; that there are too many variables involved, too much integration with other types of building products over which the original manufacturer has no control.

These are valid objections only so long as they are applied to *combinations* of products; but they do not affect the basic need for subjecting individual *components* to unified testing procedures. How the architect puts various products together, whether (and how) he tests the *combinations*, that is his concern and forms part of his service to his client. But to do this, he must know the characteristics of each product or component, characteristics which, if he is to make a professional judgement, he can safely evaluate only if unified tests have been run and similar forms of reporting them adopted.

In a recent speech Edmund Purves, the former AIA executive director, doubted if the building industry in this country would ever become a single organized entity because, "as a democracy within a democracy," it would act with "singleness of purpose" only in a matter of self-defense.

There are many areas of building activity in which such singleness of purpose is not urgent, nor, for that matter, even desirable. But in the area of unified testing procedures it would be unquestionably welcome.

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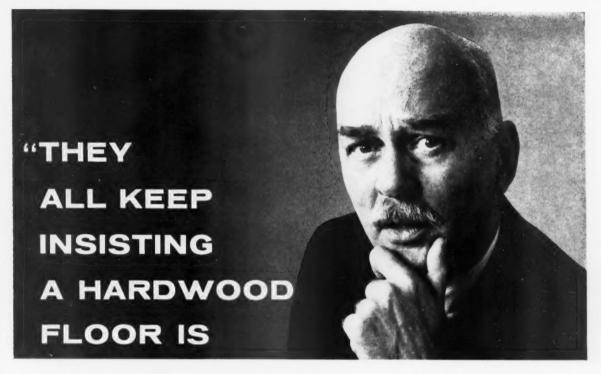
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- NOV. 6-8 STRUCTURAL CLAY PRODUCTS INSTITUTE: annual convention, Shoreham Hotel, Washington, D.C.
 - 8-10 TEXAS SOCIETY OF ARCHITECTS CONFERENCE; Hotel Texas, Fort Worth, Tex.
 - 15 AIA GULF STATES REGIONAL CONVENTION: Capitol House Hotel, Baton Rouge, La.
 - 15 SOCIETY OF PLASTICS ENGINEERS: regional technical conference on "Vinyl plastics in the household," at the Statler Hilton Hotel, New York, N. Y.
 - 16 NATIONAL ELECTRICAL MAN-UFACTURERS ASSOCIATION: 35th annual meeting, at the Plaza Hotel, New York, N.Y.
 - 17-18 BITUMINOUS CONCRETE HIGH-WAY CONFERENCE: Pennsylvania State University, University Park, Pa.
 - 27-29 AMERICAN MANAGEMENT AS-SOCIATION: special materials conference, Savoy-Hilton Hotel, New York City.
 - 28-30 BUILDING RESEARCH INSTI-TUTE: fall conferences, Mayflower Hotel, Washington, D. C.
- DEC. 3-7 NATIONAL ASSOCIATION OF HOME BULLDERS: annual convention — exposition, Mc-Cormick Place, Chicago, Ill.
- JAN. 29FEB. 2 AIEE ELECTRICAL ENGINEERING EXPOSITION: New York
 Coliseum, New York, N.Y.
- JAN. 31FEB. 2 SOCIATION: briefing session
 on "Industrial Preparedness—Planning for Corporate Continuity and Survival," Hotel Astor, New
 York City.
- FEB. 12-15 12TH ANNUAL EXPOSITION OF THE AIR CONDITIONING, HEATING AND REFRIGERATION INDUSTRY: Great Western Exhibition Center, Los Angeles, Calif.
 - MARCH
 19-21
 NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION:
 second national electric
 comfort heating exposition
 and symposium, Hotel Sherman, Chicago, Ill.
- MAY 7-11 AMERICAN INSTITUTE OF AR-CHITECTS: annual convention, Dallas, Texas.
- SEPT. 6-11 INTERNATIONAL COUNCIL FOR BUILDING RESEARCH STUDIES AND DOCUMENTATION CON-GRESS: Cambridge, England.



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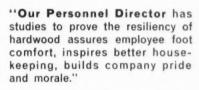
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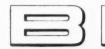
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